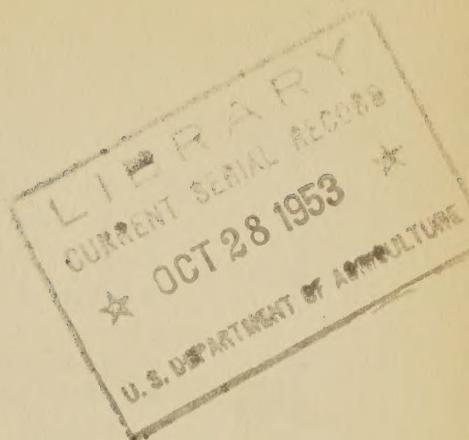


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REPORT OF THE PROCEEDINGS OF THE
INTERREGIONAL
LIVESTOCK PRODUCTION AND MARKETING CONFERENCE

June 15 - 19, 1953

at

The University of Tennessee
Knoxville, Tennessee

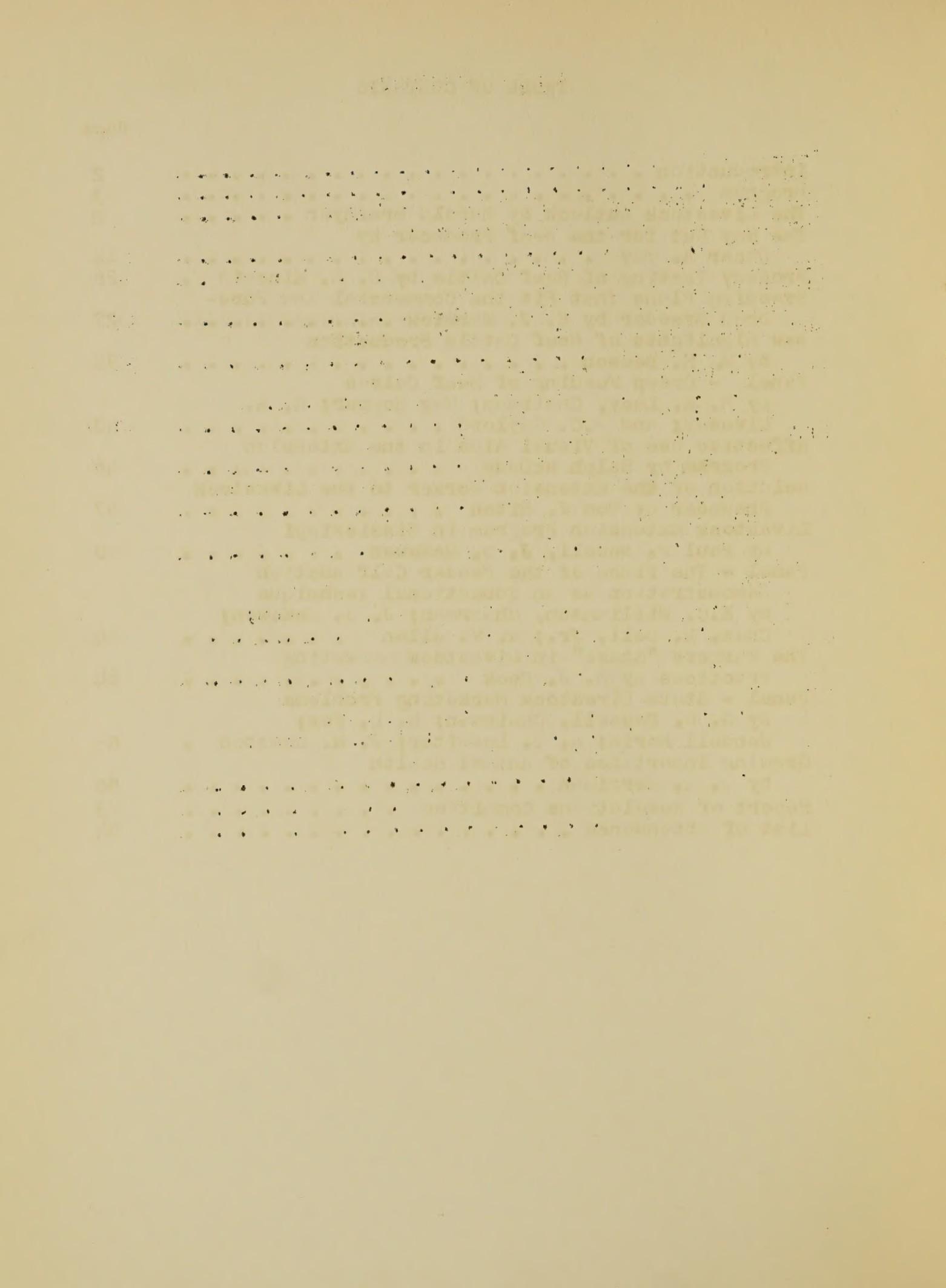
Extension Service
United States Department of Agriculture
Washington 25, D.C.

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September 1953

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INTRODUCTION

PURPOSE OF THE CONFERENCE

A working conference of livestock production and marketing Extension specialists devoted to the consideration of new developments and problems in breeding, feeding, diseases, outlook, and Extension techniques and methodology. The conference is especially designed to permit an intensive analysis and a free exchange of ideas on subject matter and Extension techniques.

PLAN OF CONFERENCE

The conference plan may be broken down into three main categories: First, reports by leading research, regulatory, and service personnel, who can contribute to the Extension program specific materials of current concern to the Extension specialists in livestock production and marketing. A full discussion of each report and its potential value or application in the Extension program follows each report. Second, panel discussions by Extension specialists themselves, in which they review the programs and approach in selected problem areas. Details of successful and unsuccessful Extension techniques are set forth for all to consider. Third, a tour of local production and marketing facilities, which broaden the specialists understanding of situations beyond his own State boundaries.

RESULTS

The reason for the continuing interest in this type of conference could probably be best summed up as follows: First, the expressed need on the part of the specialists for an opportunity to exchange experiences and ideas with personnel that have identical problems and objectives. Second, the singleness of purpose and interest on the part of all those who attend the conference. Each has something to contribute to the others program.

P R O G R A M

INTERREGIONAL LIVESTOCK PRODUCTION AND MARKETING CONFERENCE
University of Tennessee
Knoxville, Tennessee

June 15 - 19, 1953

BEEF CATTLE PRODUCTION AND MARKETING

REGISTRATION: McCord Hall, University of Tennessee Farm

MONDAY - June 15, 1953

Chairman: J.S. Robinson, Extension Animal Husbandman, Tennessee

7:30 p.m. The Purpose of This Conference
J. H. McLeod, Director of Extension, Tennessee

8:00 p.m. The Livestock Outlook
Harold Breimyer, Agricultural Economic
Statistician, BAE, USDA

8:45 p.m. Organization of Conference and Committee
Assignments
S. T. Warrington, In Charge, Livestock, Dairy,
and Poultry Marketing Section, Division of
Agricultural Economics, Federal Extension Service

TUESDAY Topic: BEEF CATTLE BREEDING PROBLEMS

Chairman: Jack Kelley, Ext. Animal Husbandman, North Carolina

8:30 a.m. The Way Out for the Beef Producer
Oscar A. Day, Economist, Wilson & Co., Chicago

9:15 a.m. Discussion Leader - George W. Litton, Head,
Animal Husbandry Dept., V.P.I., Virginia

9:30 a.m. Progeny Testing of Beef Cattle
Dr. C.M. Kincaid, Animal Husbandry Dept.,
Virginia Polytechnic Institute, Virginia

10:15 a.m. Discussion Leader - A.L. DuRant, Extension
Animal Husbandman, South Carolina

10:30 a.m. Breeding Plans That Fit the Commercial Purebred
Breeder - Dr. E.J. Warwick, Southern Regional
Beef Cattle Coordinator, USDA, Knoxville, Tenn.

11:15 a.m. Discussion Leader - Charles E. Bell, Jr.
Extension Livestock Specialist, Georgia

TUESDAY Topic: BEEF CATTLE FEEDING PROBLEMS

Chairman: Dr. John E. Foster, Head, Department of Animal Husbandry, Maryland

1:30 p.m. New Highlights of Beef Cattle Nutrition
Dr. W. M. Beeson, Prof. of Animal Husbandry,
Purdue University, Indiana

2:15 p.m. Discussion Leader - W. P. Tyrrell, Assoc.
Extension Animal Husbandman, Tennessee

2:30 p.m. Panel - Creep Feeding

Chairman, Myron E. Lacy, Extension Animal Husbandman, New York

J.S. Buchanan, Extension Beef Cattle Specialist, North Carolina

Ray Hopper, Field Agent in Animal Husbandry, Kentucky

C. L. Hill, Extension Animal Husbandman, Louisiana

E. A. Livesay, Head, Dept. of Animal Husbandry, West Virginia

3:30 p.m. Effective Use of Visual Aids in the Extension Program, Ralph McDade, Visual Aids Specialist, Tennessee

4:15 p.m. Discussion Leader - George R. Johnson, Extension Animal Husbandman, New York

WEDNESDAY Field Trip - University of Tennessee AEC Agricultural Research Program

Demonstration of the Use of Radio Isotopes in Metabolism Studies with Farm Animals

Tour of University Farm and livestock facilities, Oak Ridge

Tour - Museum of Atomic Energy

Observe complete grassland beef production - Extension TVA Unit Test Demonstration Farm

THURSDAY Topic: EFFECTIVE EXTENSION METHODS

Chairman: M. W. Muldrow, Extension Animal Husbandman, Arkansas

8:00 a.m. Beef Cattle Grading Demonstration
(East Tennessee Packing Company)

9:30 a.m. Relation of the Extension Worker to the
Livestock Producer - Tom J. Hitch, President
Tennessee Farm Bureau Federation, Columbia, Tenn.

10:00 a.m. Livestock Extension Program in Mississippi
Paul F. Newell, Ext. Animal Husbandman, Miss.
E.E. Grissom, " " " " "
J.S. McKewen, " Livestock Mktg. Spec. "

10:45 a.m. Panel - The Place of the Feeder Calf Auction
Demonstration as an Educational
Technique

Chairman, K. C. Williamson, Assoc. Ext.
Animal Husbandman, Virginia
The mechanics of the calf sale as an
educational technique and summary.

J. S. McKewen, Livestock Marketing
Specialist, Mississippi
How Mississippi organizes calf sales to make
best use of them as an educational technique

Charles E. Bell, Jr., Extension
Livestock Specialist, Georgia
The calf sale program as an educational way
for accomplishments and guidance in production.

A. V. Allen, Extension Animal
Husbandry Specialist, North Carolina
The calf sale program as a demonstration in
the way of marketing feeder cattle.

Discussion

THURSDAY

Topic: LIVESTOCK AND MEAT MARKETING

Chairman: H. C. Quessenberry, In Charge, Livestock Marketing,
North Carolina Department of Agriculture

- 1:30 p.m. Regional Livestock Marketing Problems
Jack D. Johnson, Assoc. Prof. and
Cooperative Agent, Virginia
- 2:00 p.m. The Farmers "Stake" in Livestock Marketing
Practices - M. J. Cook, Chief, Packers
and Stockyards Division, PMA, USDA
- 2:30 p.m. Panel - State Livestock Marketing Problems

Raymond L. Fox, Agricultural Economist,
Farm Credit Administration, USDA
Some basic problems in livestock marketing in
the East as compared with problems in the
range areas and in the Corn Belt.
- Wendell Earle, Asst. Prof in Marketing,
New York
A few major problems in cattle marketing in
the Northeast.
- A. T. Lassiter, Livestock Marketing
Specialist, North Carolina State
Department of Agriculture
Some major problems in swine marketing in
the Southeast.
- J. W. Houston, Asst. Animal Husbandman,
Tennessee
Some major problems in lamb and wool marketing
in Tennessee
- Chairman, Guy R. Cassell, Livestock Marketing
Specialist, North Carolina
Summary and additional comments.
- Discussion
- 4:00 p.m. Fluorine Toxicity in Cattle
Dr. Chas. S. Hobbs, Head, Animal Husbandry
Department, Tennessee
- 4:30 p.m. Inspection of Experimental Results in
Fluorine Poisoning Control

FRIDAY

Chairman: Dr. Thomas H. Bartilson, Extension Animal Husbandman, USDA

8:00 a.m. Beef Cattle Carcass Grading
(East Tennessee Packing Company)

E. C. Maxiener, Meat Grading Specialist,
Livestock Branch, PMA, Cincinnati, Ohio

J. W. Cole, Associate Animal Husbandman
Tennessee

9:30 a.m. The Growing Importance of Animal Health
Dr. G. M. Merriman, Associate Veterinarian,
Tennessee

10:15 a.m. Discussion

10:30 a.m. Committee reports and business session

12:30 p.m. Adjourn

THE LIVESTOCK OUTLOOK 1/

The economic position of the livestock industry is perpetually in transition. As in other agricultural enterprises having large numbers of individual producers, responses are always being made to changing conditions--sometimes slowly, at other times more rapidly. Production, price and income are seldom stable for any long period of time. . . .

I am going to discuss present and prospective economic trends in livestock. But first I want to relate this feature of the industry to the individual producer. To him variableness is a source of indecision. It becomes a question for him as to how to make plans for the future with some degree of confidence. What assistance can he be given? At least he needs the best possible economic information on current trends in livestock and the prospects for the future. We call this outlook information. It has been provided to farmers since the early 1920's. Many or most of you here are associated in disseminating outlook information, directly or indirectly in your State. Some of you also carry on analysis basic to evaluating the outlook. It is our job to prepare and present outlook information as accurately and effectively as we can.

Those of us engaged in appraising the outlook must keep in mind the flexibility and variability of the livestock industry, looking at the future not as a simple extension of the past and present but as something that is constantly evolving.

Economic changes in livestock during the last few years are well known. I will review them only briefly. The end of World War II found comparatively small numbers of hogs and sheep but a record number of cattle on farms. Marking that period was a considerable misgiving for the future, as the strongly war-based economy was ending. Livestock producers, like others, reacted to the uncertainty. The results, which were speeded by poor feed crops in 1947, were that hog production was held liquidated. In 1947 cattlemen sold not only the steer and heifer inventories that they had built up under price control, but also many breeding cows.

A consequence was a shortage of meat in the face of unexpectedly strong demand. Prices of meat and livestock shot to new highs in the summer of 1948. Later, farmers again took heart and, aided this time by big feed crops in 1948, they began to expand production. For hogs the build-up was fast; by 1951 the pig crop reached a peacetime-record, 102 millions. For cattle, with their long life cycle, the expansion was slower.

1/ Presented by Harold F. Breimyer, Agricultural Economic Statistician, Bureau of Agricultural Economics, U.S. Department of Agriculture, at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

But in 1950, 4 million cattle and calves were added to herds. In 1951, the addition was almost 6 million and in 1952 it was about the same number. By January 1953 numbers were at an all-time high of 94 million, 17 million more than 4 years before. Almost all the increase in these 4 years was in beef cattle. Furthermore, stimulated by exceptionally large profits in cattle feeding in 4 of the last 6 years (1946-47, 1947-48, 1949-50 and 1950-51), cattle feeding hit by far the largest volume on record this past winter. The 5.8 million head on feed January 1, 1953 was up 53 percent from the 3.8 million in January 1948.

While cattle numbers continued to mount, hog production turned down from its 1951 high. Large marketings of hogs depressed prices, and in 1952 hog producers cut their pig crop 10 percent below 1951. Their plans last fall were for a 13 percent further reduction in the number of sows to farrow this spring. We will not know until June 22 how exactly their intentions were actually followed; but if the pig crop was no larger than had been indicated it was the smallest since 1938.

These vacillations in production have been reflected in as great or greater changes in slaughter and in price. When producers were holding on to cattle and calves in 1951 they sold only 26 million for slaughter. Last year 28 million were slaughtered. This year slaughter will be much higher. In the first 3 months of 1953 commercial slaughter of cattle and calves was up 23 percent from a year before. In the 3 months from April through June it looks as though the number slaughtered will be up a whopping 35 percent. This means an increase of around 30 percent in slaughter for the 6 months as a whole.

But hog slaughter in commercial plants was down from last year by 13 percent in the first 3 months and will total around 15 percent less in April-June.

Prices for cattle have declined sharply in the last year. For grass cattle the break came a year ago this spring and the down-trend continued until winter. For fed cattle the greatest declines came between January 1 and April of this year. Prices for hogs, on the other hand, stayed low through last fall, partly because producers chose to market more hogs than usual before mid-season. They then started up, and have increased very materially. A few quotations will show the contrasts between the trends in cattle and hog prices. The week before last, Choice grade steers at Chicago averaged \$22.82 per 100 pounds. In 1951, this grade had been as high as \$37.00. Utility cows were \$12.90 two weeks ago; in the spring of 1951 they were \$26.00. At Kansas City all stocker and feeder steers recently have averaged about \$18.00; in 1951 they were as much as \$36.00 and the 1951 year-long average was \$32.63. But barrows and gilts at Chicago sold for \$25.60 the week before last. This was \$9.00 above the price received last December, and recent prices have been the highest since 1948.

Changes in sheep have been nearly as dramatic. After decreasing for 8 consecutive years, numbers were increased in 1950 and 1951. But they were held level last year, and the 17 percent larger slaughter in the first half of this year than last indicates that numbers are being reduced again. Prices of lambs declined rather steadily from \$41.00 per 100 pounds for Prime and Choice grade at Chicago in early 1951 to about \$22.00 early this year. But in the last 4 months prices have recovered by several dollars.

What factors underlie these changes, and what is promised for the future?

Dominating the present situation and outlook is the big inventory of cattle. We in the Bureau of Agricultural Economics forecast last fall that expanded numbers of cattle on farms would mean an increased slaughter in 1953 and later years. A larger slaughter has surely come, exceeding even the fairly substantial increase that was expected for this year. The 35 percent rise over a year earlier now indicated for second quarter slaughter is a truly phenomenal increase. Moreover, most of the increase has been in slaughter of steers and heifers. Although more cows than a year ago are being slaughtered, the percentage gain is less than in other classes, and cows have been a smaller part of total Federally inspected cattle slaughter than in any of the 10 years of record. Cattle slaughter is large this year because a great many steers and heifers had been brought to market weight and were ready for slaughter, just as was true in 1947; because a great many cattlemen have reached the normal capacity of their range feed or other feed supplies; because dry weather in the Southern Plains has forced many cattle to move out of that area; and because the lower prices are themselves discouraging to producers.

The big cattle marketings mean that we are fast eating our way into the peak of the cattle cycle. This offers more promise of stability in future beef supplies and prices than previously seemed likely.

The prospective trend of the cattle cycle can be projected roughly according to the pattern of previous cycles. In April I gave a talk at West Virginia in which I graphed the course of the last several cycles in cattle and laid out the most probable trend of this one. Briefly, the projections were about as follows: that sometime before the crest of this cycle is passed the annual beef supply will provide a consumption about equal to the record high of 73 pounds per person set in 1909. It appeared that consumption this year would be about 70 pounds, and that the 73 pound peak would not arrive for another 2 or 3 years. Thus the 1953 consumption was expected to be close to but still below the eventual peak, and a high and perhaps slightly increasing level was in prospect for a few more years.

In general this still seems to be the most probable outlook, with the exception that each month of huge cattle marketing add to this year's beef supply and reduces that expected later. Beef consumption this year might equal the previous record. Without a doubt, the annual beef output will remain very large for several years. But it may show little or no further increase above 1953.

The expansion in the number of cattle on farms is being slowed. Depending on the size of the calf crop, slaughter of something like 36 million cattle and calves would be necessary to prevent an increase in cattle inventories at the end of this year. The prospect as of now is for a slaughter somewhat less than this. However, the further increase in inventories would be small.

More specifically, enough steers and heifers will be slaughtered this year to reduce the inventories of those classes next December 31. Another small gain in numbers of dairy cattle is entirely possible. Numbers of beef cows may once more increase, for even if considerably more should be slaughtered they probably would be replaced by beef heifers added to herds during the year. The change in total cattle numbers will be made up of these separate and different changes for individual classes.

If a great many cattlemen should decide to reduce their herds, cattle slaughter would exceed the natural increase and inventories next December 31 would drop below those of last January. This is most likely if the present drought should intensify or spread. On June 1 severe drought prevailed in southwestern Kansas, southeastern Colorado, western Oklahoma, the western half of Texas and southwestern New Mexico. There was also dryness in the southern East Coast and in the southern sections of the Rocky Mountain area. However, in the northern half of the country pasture feed was very good.

Most of the changes in prices of slaughter livestock from a year ago are attributable to changes in supplies of meat. Demand for meat appears to be fully as strong a last year. For the increased marketings of cattle have added a great deal to the supply of beef for consumption. We have recently made preliminary estimates of consumption for the April-June quarter. It looks as though every man, woman, and child in the United States will consume on the average about 19 to $19\frac{1}{2}$ pounds of beef in that quarter. This is up from 14.3 pounds in the second quarter last year. In recent years no more than $17\frac{1}{2}$ pounds has ever been consumed that quarter, and the high for any quarter was above 18 pounds. Even though pork consumption is down, total meat consumption for April-June may be as much as 4 pounds or 12 percent above the same quarter last year. In relation to these supplies, retail prices of meat do not appear out of proportion. Retail prices of beef are about a fourth below last year. Prices of lamb have been 10 to 15 percent lower. Retail prices of pork, on the other hand, are up a tenth or thereabouts. Figuring the value of all consumption at average retail prices, we find that the value of meat

consumed per person in the second quarter is approximately the same as a year ago, indicating no appreciable change in the strength of demand.

Prices of cattle have declined by a larger percentage than has the price of beef. Slaughter cattle prices have been a third or more below a year ago. At times of up- or down-trend, prices of the live animal almost always swing farther, in percentage terms, than the price of beef at retail. The reason is that the return to middleman agencies is generally more nearly constant. This year there is some evidence that the marketing margin for beef--the difference between the value at retail and the live animal--has widened slightly. The marketing margin for pork, on the other hand, has been rather narrow recently.

Adding some support to prices of cattle--or preventing more decline--has been the small supply of pork. Pork consumption this year will be down 11 pounds or more from the 72 pounds per person in 1952. Though the size of the pork supply has an influence on prices of beef and of cattle, the sharply opposite price trends for pork and beef this year prove that the two meats are only moderately competitive. This bears on the outlook too, for hog production is doubtlessly on the upgrade. Recent prices are encouraging to producers. We think more pigs will be saved this fall than last, and that a further expansion is ahead for next spring. Supplies of pork will continue small through the end of 1953 at least. Next year the pork output will begin to climb once more.

If indeed beef supplies level off to a plateau at round 70 pounds or so per person, trends in prices for slaughter cattle will be governed chiefly by any changes in the size of consumers' incomes and their demand for meat. Important as are the big cycles in beef production, demand also is an important factor. If demand continues strong, prices will likely prove to have hit their bottom in 1953 and might improve a bit. But any weakening from the present strong demand would prevent prices from improving and could bring a further decline.

These are general prospects, with special reference to slaughter cattle. Prices of stocker, feeder and breeding cattle often go off on entirely separate trails of their own. Prices of these classes are largely determined by demand within the cattle industry. That is, they are high or low depending on whether feeders in the one case, and breeders in the other, feel optimistic or pessimistic about the future. An additional factor, to be sure, is the favorableness of feed conditions. In the last few weeks, with the spring demand ending for cattle to go on pasture, prices for stocker and feeder steers have declined. They have, however, been erratic. Hovering over the market is the experience of cattle feeders this past winter, when prices went down so much between the time feeders were bought and fed cattle sold that many feeders sustained serious financial losses. This experience dampens demand for cattle to be fed next winter. The chances are that the

confidence of feeders will continue to fluctuate. A further seasonal decline in prices is likely until fall, but the trend will probably be jagged and irregular. However, the present strong demand for meat, if it continues, could result in some increase in prices for fed cattle after the bulk of cattle now in feedlots has been sold. Such a rise for fed cattle would help to renew confidence in feeding and would alleviate price declines for feeder cattle.

With sheep numbers apparently decreasing again, lamb will remain a comparatively scarce meat, with consumption now exceeding 4 pounds per person in the next few years. At this level of supply, prices for sheep and lambs will be sensitive to changes in prices for cattle. But they probably will retain a little higher relation to cattle prices than in the past few years.

Sheep and lamb production may continue upward in eastern States, but it is definitely decreasing in the Southern Plains. Little expansion at most, and more probably a small contraction, is taking place in the Mountain and Pacific West.

I have reviewed the changes in the livestock situation of recent years and those that appear to be occurring now. Meat supplies, both in total and per person, will probably be a little larger the next few years than in the last few; 1953 production will considerably exceed that of 1952, and a continued high level seems assured due to an expected expansion in hogs along with an expected high plateau in the supply of beef. Prices of hogs will swing back closer toward those for cattle. Both will hold up comparatively well if consumer incomes stay high, but both would decline along with any decline in income.

The livestock industry would gain if it could avoid the sudden and sharp changes in production that have marked it in the past, that is, if when hog producers now expand they do not once more overdo their expansion, and if cattlemen do not over-react to the deflation cattle. Cattlemen will have to sell many cows in the next few years, but it is to be hoped they do not sell too many, thereby building the groundwork for another cyclical swing. Again, statistical and outlook information can be helpful. I am confident that both statistical data on the number of livestock on farms, the number fed, and the number raised, and outlook information on prospects for the future are reaching more farmers now than ever before.

For the longer pull, a gradual uptrend in livestock numbers and production will be called for. The population continues to grow, and it will need an increasing supply of meat. Both producers and consumers would profit if trends should be a little more gradual in the future than in the past.

THE WAY OUT FOR THE BEEF PRODUCER 1/

This subject, "The Way Out for the Beef Producer," could have a couple of very unfortunate meanings. However, I am sure these were not intended, and they will not be the basis of my discussion.

In the first place, I do not take the subject to imply that beef producers feel they have landed in a "bottomless pit with no lantern." Many of them certainly are shocked, and doing some serious thinking and planning, but not very many have been ruined.

Second, there is no indication that the big question in the minds of many beef producers is "How to get Out of the business," with minimum losses, as this title might also imply.

On the contrary, there is good evidence that cattle and beef producers are not too upset and jittery, and are not vindictive. A good deal of this realistic attitude probably could be traced to the influence of agricultural extension workers -- to the sound advice they gave many producers when they entered the beef-cattle business, and to the careful interpretations they have made of recent developments. There still is plenty of confidence and much sound thinking and talking about problems and opportunities. This is the right approach and, of course, the only way to determine "The Way Out for the Beef Producer."

As a background, let us first review some of the things that have happened, and where we are, in the beef business.

The number of beef heifers on farms started to increase five years ago, in 1948. Beef-ccw numbers reflected that increase a year later, in 1949. From the low points in 1948-49 there has been a 41 percent increase in beef cows and heifers. This is a big increase, but not a record. The increase from 1939 to 1943, in a like period, was just as fast. Of course, the actual number far surpasses any past number. Total beef cows and heifers on farms last January of 28.9 million head were 34 percent above the previous peak in 1945.

In this increase there has been a considerable shift in the location of our country's beef-producing herds. In the past four years, beef-cow and heifer numbers have increased much faster throughout the Atlantic and South Central States.

1/ Address by: Oscar A. Day, Economist, Wilson & Co., Inc., Chicago, Ill., given at the Interregional Livestock Production and Marketing Conference, Knoxville, Tenn., June 16, 1953.

In the North Atlantic, South Atlantic and South Central States, excluding Oklahoma and Texas, the increase has averaged 70 percent, compared with 41 percent for the United States. Beef-cow and heifer numbers in these States are now 62 percent above the 1945 peak. The actual number, as well as the increase, is now highly significant, for over 20 percent are now in these eastern and southern areas.

Beef-cow and heifer numbers have also increased more in the Corn Belt than in the West, although not as fast as in the East and South. It is a significant fact that over 35 percent of all beef cows and heifers are now in the "East and Deep South," that is, east of the Dakotas, Nebraska, Kansas, Oklahoma, and Texas.

There are three points I should like to discuss on the significance of this proportion of our beef-producing herds in the "East and Deep South" area, as just defined.

First, I believe this is a sound development for producers. In other words, it reflects the good judgment of thousands of farmers in these areas.

While high prices and good incomes from beef cattle have aided and abetted the increase, I do not think that the increase primarily reflects opportunism, or short-term thinking. Predominantly, these increases have come from adding a beef-cattle enterprise to farm operations, or increasing beef cows for better balance.

Another widespread purpose has been to utilize increased acreages and yields of legumes and grasses, which have resulted from improved and expanded soil conservation practices. Certainly, we can all agree this is a good development. For several years, my Company, in its agricultural relations work and advertising, has used a slogan that pretty well summarizes this thought, which is, "Livestock and Proper Land Use are Natural Companions."

In addition, many sound, new beef-cattle farms have been established in recent years on abandoned and lower-grade land in the Middle-West, East, and Deep South. These operations, at least as a rule, are bringing this land back into use, or helping to balance man-hours per acre with productivity, and are improving and conserving our lands.

Therefore, greatly increased beef-cow numbers in the eastern and southern parts of the country is a sound long-term development which should be continued by most producers from the viewpoint of farm organization and management.

Second, I believe the location, character and importance of present-day beef-cattle production in these expanded areas will result in greater stability in production.

There are two reasons for expecting this greater stability in beef-cattle production. The most important is the lesser hazard

of adverse weather, particularly droughts, in the Middle-West, East and Deep South than in the Great Plains and Southwest. With generally more ample feed reserves and fewer failures over large areas, there should not be many times when beef-cattle will be seriously short of feed in the eastern half of the United States. Distress liquidation should be less frequent and widespread.

The other reason for expecting more stability is because of the extent to which the beef-cattle enterprise in these areas is only one of several enterprises on individual farms, yet constitutes a definite, needed item in a balanced program. This should mean, on the one hand, great reluctance to liquidate and, on the other hand, less pressure financially to reduce when the cattle business is poor. Other enterprises can "carry" the basic cattle production herd in these periods.

If this be the case, then our swings in the cycle of cattle marketings might be moderated significantly, and consumers could have a more regular supply of beef.

The third observation on the significance of more beef-cattle production in the Corn Belt, East and Deep South, is that there should be more flexibility in production and marketing. This is less tangible and probably less important than the other points mentioned, but nevertheless a point I would like for you, especially, to consider.

Typically, in these areas, beef production is a fully integrated operation on each farm, including feed production, cow management, calf-raising, cattle-finishing, and final sale directly for slaughter.

This set-up provides maximum opportunity for changing production costs and practices according to conditions. Variations can more readily be made in quality, weight and finish to meet the requirements of the market. Particularly in the South, there is more flexibility in calving time.

This opportunity for control and flexibility would seem to offer a special challenge to you beef-cattle production-and-marketing extension specialists in the East and South. Cattle producers, in general, can shift and change their production and marketing programs to fit current and foreseeable conditions as you determine these things through research and analysis, and advise them through extension.

Thus far we have only been discussing the question of the shift in the location of beef-cattle production, but, as you well know, some much more exciting things have happened in the past year on cattle marketings, beef production and prices.

The time has arrived when increased beef-cattle numbers have become apparent to beef consumers.

As numbers increased, cattle and calf marketings continued to decrease in 1949, 1950, and 1951, in typical cyclical fashion. In 1952, however, the tide began to turn and cattle slaughter was consistently and substantially higher than in 1951 beginning in July. This came primarily from increased marketings of steers and heifers off of grass, plus somewhat more cows. It was reflected in substantially lower prices for these kinds of cattle, whether they went to feeders or to slaughter, but not much decrease in the price of fed cattle.

With much lower feeder prices, but only moderately lower fed-cattle prices, there was a tremendous movement of cattle to feed-lots, including many calves. Slaughter of beef calves continued low.

Soon thereafter, consumers and cattle feeders began to realize there finally was more beef, and not a little more, but a lot more.

Cattle slaughter under Federal inspection was 22 percent larger in January 1953 than a year earlier and the increases continued to mount until the April slaughter was up 48 percent. For the five months, January-May, federally inspected cattle slaughter has been 32 percent higher this year than last year. Total commercial beef production has been up an estimated 28 percent.

This increased marketing, nearly all of which has been fed cattle, has been directly and fully reflected by lower beef prices, and, in turn, lower cattle prices. Again comparing the first five months of 1953 and 1952, wholesale carcass beef prices were down at Chicago 26 percent on Prime grade, 30 percent on Choice grade, and 32 percent on Good grade, and 32 percent on Commercial. Beef steers at Chicago reflected this decline in beef prices with a 32 decline in the weighted average for all grades.

Four important conclusions may be drawn from these changes of the past few months in beef production and prices.

First, high-level consumer income does not guarantee beef prices. I suppose no one has seriously said that it did, but there has been so much discussion of the importance of buying power to agricultural prosperity, that some may have more or less forgotten about supply, or minimized it. For example, the following statement is from a reputable Washington newsletter dated December 1, 1952: "Cattle price smash-ups come in depressions or business recessions. The demand side of the market equation is more important than the supply side when it comes to cattle prices. More than any other major commodity, cattle prices are tied to national prosperity."

As a matter of fact, consumer incomes in the first quarter of 1953 were 7 percent higher than in 1952. This time, for a change, we can hardly blame the consumer for lower cattle prices. One conclusion is that cattle and beef prices can be depressed without a depression.

While cattle prices have been depressed in the sense of a large decline, they are not really "in a depression." After all, we have just had a period of four or five years of unprecedented cattle prices in relation to other farm products. With all the downward adjustment of the past year, the farm price of beef cattle in May 1953 was still higher in relation to the price of all farm products than in 33 of the past 42 years. It was still as good as in 1947, when cattle slaughter was at a peak in the last cycle, and was nine percent higher than farm prices in general compared with the prewar average of 1935-39.

Superficially, we could dismiss these supply and price changes of the past few months with the summary observation that they have reacted about as should be expected. That is, cattle prices have declined just about in proportion to the increased supply. Actually, this would be incomplete and bypass a point which provides some encouragement for the future.

Closer analysis of the situation raises the question, Why have cattle prices declined in proportion to increased production, all things considered?

There have, in fact, been two independent factors in this period which should have moderated the effects of increased cattle marketings on cattle prices. First, we have already mentioned the higher disposable income of consumers. Studies of Karl A. Fox of the Bureau of Agricultural Economics ^{1/} indicate that this should have increased the farm price of cattle to the extent of at least \$1.00 per hundredweight.

In addition, hog producers have been very "accommodating" to beef producers in arranging for less pork in the past few months than last year. Interpreting the analysis by E. J. Working, University of Illinois, ^{2/} this decreased supply of pork should have improved the farm price of cattle by \$0.50 to \$1.00 per hundredweight. For these two reasons, then, cattle prices might have been expected to be up close to \$2.00 per hundredweight.

On the other hand, according to Fox's correlations of beef-cattle supply-price relationships ^{3/}, the farm price of cattle should have been expected to decline more than the supply increased, considering changes in the supply alone. A 28 percent increase in supply should, according to past experience, mean a 34 percent decline in price, or about \$9.50 per hundredweight in the past five months, compared with a year ago.

1/ "Agricultural Economics Research," vol. III, No. 3, p. 74, Table 5, July, 1951.

2/ "Studies in the Measurement of Demand with Special Reference to the Demand for Meat" -- Doctorate thesis, Harvard University, 1952.

3/ Fox, op. cit.

Adding these influences together indicates a decline in the farm price of beef cattle of around \$7.50 per hundredweight might have been expected under the circumstances, whereas the decline was nearly \$9.50. Therefore, it seems that cattle prices may have declined something like \$2.00 more than can be explained by statistical studies of past experience. Of course, these calculations all involve errors of estimates and assumed conditions that may have changed. At least some disparity, nevertheless, is indicated.

Actually, I believe this is a rational situation. It is consistent with our observations in selling beef in periods of rapidly increasing supplies, and has also been explained by E. J. Working, who has said, "...in the long run, the demand for meat is less inelastic than in the short run." ^{1/}

A lag is to be expected in the change of meat demand, either with a change in supplies or in consumer incomes. Ordinarily, this is not important enough to be noticeable, but it becomes quite apparent when extreme changes occur.

Recent increases in beef supplies provide an excellent illustration. This merely means that it takes time for consumers to adjust their buying habits. Drastic price adjustments have been necessary to move this greatly increased supply of beef in this short period of time.

Beef is nearly all sold fresh and is very perishable. It had to be moved, and some bargains had to be offered. Consumers got more beef for slightly less dollars in the process. But this, I believe, is temporary. The conclusion is that people are getting accustomed to eating more beef, and in due time will spend just as large a proportion of their dollars for beef as before.

From this analysis, we are encouraged to believe that, as time goes on, and this lag in demand is eliminated, we should experience a better demand for the same supply of beef. We are already finding that the increased supply of beef is a little "easier" to sell.

I do not wish to overemphasize this second conclusion from recent experience, but it could be distinctly worthwhile to the cattle producer in a period of tight margins and uncertainty.

My third conclusion about recent cattle marketings bears on the nearby outlook. It appears that we have already seen the largest increases to be expected from the past season's cattle feeding operations. Fed-cattle marketings, for three months, have been well in excess of officially-indicated increases in the number on feed. The longer that fed-cattle marketings continue

^{1/} "Appraising the Demand for American Agricultural Output During Rearmament," Journal of Farm Economics, vol. XXXIV, No. 2, p. 218, May, 1952.

at current levels, the greater becomes the probability of decreased supplies later. Finally, we understand that the unusual numbers of cattle on feed outside of the Corn Belt have been largely marketed. These, of course, were a big factor, especially in March and April. California beef dressers have lately been coming as far east as Sioux City, Iowa, for finished cattle.

Consequently, there is at least a good chance that quality beef supplies, sometime between now and early fall, will be smaller than in the past few months, and that the price may show some strength. To be realistic, however, we must keep in mind that there still are large numbers of cattle on feed in the Corn Belt, and especially light-weight yearlings which could come in earlier than usual if either the market becomes more attractive or if there is too much apprehension about fall prices.

The fourth and last point I wish to discuss on recent developments is that we have not yet entered the so-called liquidation phase of the current cattle cycle even though beef supplies have increased nearly 30 percent from a year ago.

These increases have come largely from cattle-feeding and primarily just reflect the increased capacity of our cattle-producing plant. There was no abnormal liquidation or selling of beef cows or calves last fall, which is the basic measure of a turn in the cycle of cattle numbers. Moreover, unless cattle slaughter the rest of the year is at a higher level than anyone now seems to expect, there will not be enough slaughter in 1953 to reduce total cattle on farms on January 1, 1954. This is the commonly accepted test of a change in the cattle cycle.

If the turn has not yet started, then what kind of beef supplies should we expect until marketings finally begin to decrease? As you know, slaughter must increase to reduce numbers, and it normally continues to increase for a year or two after January 1 numbers begin to decline.

I expect to see substantially increased marketings of all classes of grass cattle in 1953, including a substantial increase in beef-type cows, heifers and heifer calves. This year is likely to mark a definite change in the attitude on accumulating more beef-producing stock, even though numbers on farms, including beef cows, next January are expected to be somewhat higher. It is our opinion that this will foreshadow the stabilization of cattle numbers in 1954 and possibly a turn in the cycle. Maximum numbers on farms may not go much over 96 million head at the peak.

As early as the spring of 1952, the demand for beef breeding stock was curtailed, and net additions to beef-cow numbers in 1952 can be accounted for by heifers previously bred which were retained in herds.

In recent months there has been very little interest in beef cows, heifers, or heifer calves in the West. It seems quite clear that potential new producers have lost interest. Cattle numbers in many sections of the Great Plains and Southwest are now at a level which must require at least average weather, and grass and hay production, for sustenance. The drought in the Southwest last year, followed by a continuation this spring, has demonstrated this circumstance. Cow-marketing from that area has started several weeks ahead of normal. Federally inspected cow slaughter in April was the largest for that month since 1947.

There is considerable evidence that the cattle cycle has speeded up over recent years. Beef production has increased more rapidly than it did following low points of previous cycles. Both grass and fed cattle are being marketed younger and lighter. Cows, accordingly, represent a larger proportion of the inventory. Quite a few aged cows went back to the country from markets in the past three years, and are due back before long.

The precipitous decline in cattle prices of the past year certainly will affect the expectations and planning of some beef producers. In particular, I have in mind late-comers, some of the large ranchers and the feeders who might favor hogs, the price of which is higher than steers at midwest markets for the first time in six years.

Although I am discussing beef cattle, the dairy situation and prospects should not be overlooked. Approximately one-third of our supply of beef and veal comes from dairy herds, and over 40 percent of all cattle on farms are cows, heifers and heifer calves kept for milk. In view of the present dairy situation and the uncertainty of the future, particularly with reference to Government policies, it is at least a possibility that dairy cattle and calf numbers may also be turning downward soon.

For these reasons, in brief, we doubt if the current cattle cycle will last as long as might be expected from year-to-year comparisons with previous experience.

In considering future beef supplies it must be remembered that in the liquidation phase of the cycle, more cows, calves and light-weight cattle are marketed. Also, population is growing all the time. Peak slaughter of 38 to 38.5 million head of cattle and calves in 1955 would reduce the number on farms. It would be 10 percent more slaughter than the number we expect in 1953. Yet, the per capita production of beef and veal would only be up 4 percent from the annual rate of 80 pounds that has been consumed in the past few months. Therefore, at least on an annual basis, total beef and veal supplies per capita should not greatly exceed current levels if increased marketings can come along in an orderly way without a serious drought or panicky liquidation.

The level of cattle feeding next winter certainly is difficult to predict at this time. Unfavorable cattle-feeding results in 1952-53 and the alternatives in the midwest of taking a government loan on corn or feeding more of it to hogs, will tend to

reduce the demand for feeders.

However, if a large number of stocker and feeder cattle and calves are marketed this fall, a high level of feeding is likely to follow. There presumably is a price at which feeders will buy, regardless of past experience and alternatives. This was demonstrated last fall after a season when feeding results certainly had not been very good.

Again this fall, an important question will be the extent of slaughter demand for grass cattle, and the prospects are not very strong considering the increasing preference for block beef with a better finish, which I now want to discuss.

If large, or even larger, beef supplies are to continue for some time, then certainly this is the time to consider most seriously what the consumer wants. It looks as if the time is past when all it took was just "a piece of beef."

It probably would be no exaggeration to say that recent changes in beef merchandising will be about as significant in the long run as recent changes in beef supplies. I refer to the growth and effects of self-service meat retailing.

With self-service meats, consumers have full opportunity to express their preferences for quality, price per pound, weight and total value in a very direct, unmistakable way. Mrs. Housewife, going independently down along the meat counter, thinking and selecting what she wants, no longer needs to be compassionate with her butcher and say, "Well, that is just a little larger, or just a little fatter, than I had in mind, but I'll take it as long as you have it cut and weighed."

Now she simply does not pick up the "too-fat" piece of beef, or one too large for her immediate plans. So, the manager of the meat department, necessarily watching very closely the movement of these highly perishable packages, learns "right now" what his customers want.

And, what they want is small, "thin-skinned" steaks and light, meaty roasts. They want some marbling in the beef and they like a bright red color in the lean meat, but if there is very much fat on the cut, it better be trimmed off before the package is wrapped. It can't be "tucked in" anymore. If you have asked your butcher lately what he gets for shop fats, you will understand what it means to him when much fat has to be trimmed.

Then, consider the problem of making small, thick steaks, and light roasts from a big steer, and you have the picture. The demand is narrowing down, and fast, to carcasses and cattle of uniform, light weight, with good but not long fed finish.

This trend, actually, has been under way for a good while, although it has been hastened and accentuated by self-service merchandising. I have no definite way of describing the

importance of present-day and prospective preference for light-weight, thin-skinned, quality beef. But I venture you would be at least surprised if you could hear how strongly self-service meat retail buyers insist upon continually getting the same weight, quality and finish in their beef. They will pay quite a premium for it if necessary, or discount other kinds plenty if what they really want is not available.

In terms of live cattle, this means a concentrated demand for the top-Good and low-Choice grades, weighing up to about 1,100 pounds, but with plenty of quality in the meat and with a high proportion of lean meat to bone and fat.

The broadest demand is for the 900-to-1,100-pound range, or about 500-to-700-pound beef. Cattle with quality and a grain finish in the 700-900-pound live weight range also enjoy a very good demand, particularly in some rural areas, and there is a good possibility that the demand will broaden for this kind in the future.

On lighter weights, commonly referred to as "baby-beef," we are observing a different trend. To some extent, this may reflect the effects of increased supplies and bunched marketings of heavy calves, but probably supply is only a part of the problem.

On the demand side of the "baby-beef" situation, the increasing consumption of better beef in the South has certainly been an adverse factor. For example, only a few years ago, Miami was the only big market in the South for beef like consumers in the northern and eastern markets wanted. Now, however, most of the large southern cities and many of the smaller places are providing a substantial outlet for grain-finished beef. Jacksonville, Tampa, Atlanta, Montgomery, Birmingham, Mobile, and New Orleans, for example, are eating an increasing and surprising amount of heavier and better-finished beef than provided by 400-600-pound cattle and calves.

By this I do not mean there may be a vanishing market for "baby-beef," but it is quite evident that the market has limitations, both in terms of quantity and stability. Naturally, a larger quantity can be sold at some price, but that price may not represent the best net return obtainable by the producer. And if it has to be sold primarily to low-income consumers, there could be, over the years, considerably wider fluctuations in the demand than for the kinds desired by the middle and upper income groups.

This "baby-beef" problem has been accentuated both by the increased production in the South and by the bunched marketings in the summer and fall. Substantial discounts have been required in the last two years to move this beef.

A serious limitation in marketing these calves is that so many of them are not suited for further feeding to produce efficiently the weight and quality of beef we have described. Although calves

from milk-type cows, or from cows with some dairy breeding make economical gains for producing baby beef, they are not desirable for feeding out as good to choice yearlings.

Considering the trend toward more cattle feeding in the South, there is, and likely will be, a broader market for good and choice feeder calves and yearlings in the South and East.

We have definitely found, in connection with obtaining many feeders for commercial demonstration projects around our plants at Memphis, Tennessee, and Dothan, Alabama, that locally produced feeders, of the right quality, do better in the South than similar feeders from the West or Southwest. This is another reason for increasing the production of quality beef calves in the south.

Fortunately, it seems to us, the kind of beef which has the broadest demand is practical and economical to produce over large areas of the country, and particularly in the East, South, and Middlewest. I shall mention five reasons.

In the first place, it means a quicker turnover than in producing older, long-fed cattle. This means less risk from price fluctuations for the finisher, whether he buys, or produces, his feeder cattle.

Second, it means that more grass can be used, because less finish is required, and that, therefore, the cost of production can be substantially reduced.

Third, it means that wider areas can produce or economically buy the limited amount of grain still needed to produce the kind of beef in greatest demand. Limited grain on "grass" or with roughage in the winter to maintain the degree of finish of the fall, plus grain on grass in the spring and summer, plus thirty to sixty days of dry-lot feeding, definitely will produce the desired weight and finish.

Fourth, I believe there is more flexibility in producing this kind of beef. It can be yearlings, sold at 700 to 900 pounds, or long yearlings and short two-year olds, marketed at 900 to 1,100 pounds. There is considerable flexibility on when they can be put in the dry-lot for finishing, especially for yearlings, depending on pasture conditions or the market situation. And, once they are on grain feed, they can be fed for thirty, sixty, ninety days or even more, depending on feed supplies, feed price relationships and market developments.

Finally, this beef is also the high-quality kind that should be most advantageous to the producer. I do not mean quality just on account of finish, but the quality characteristics that are associated with type, conformation, efficient gains and fleshing qualities to make tempting, tender-looking beef.

In the period ahead, efficient beef production may be the difference between "staying in" or "getting out" -- between a fair profit and a serious loss. Quality is a prime consideration. Maximum use of grass and roughage is important in reducing costs, but superior-quality cattle are required in the grass-and-grain program to produce the quality of beef that consumers want.

Since finished beef is being shipped into the East and South throughout the year, local producers should have a distinct competitive advantage in feeding cattle when they can produce the grain required. Assuming other things are equal, they also have the freight differential to apply against the extra cost of imported grain. The freight rate, for example, on live cattle from Chicago is now \$1.05 per 100 pounds to New York, and \$1.81 to Jacksonville, Florida. On beef the rate from Chicago is \$1.64 to New York, and \$2.05 to Jacksonville.

There are, of course, numerous alternatives in beef production that may be followed, depending on the conditions in the various localities and on individual farms, ranches or plantations.

Climatical opportunities for fall calving would seem to merit serious consideration in the southeastern and southcentral States. Programs based on fall calves can take advantage of marketing when seasonal prices are relatively favorable.

If it is to be a cow-calf, "baby-beef" program, the calves may be marketed in the spring ahead of the normal rush.

Or, the calves may be given grain on grass in the spring and early summer, and finished on grain in the late summer or fall to produce light-weight better beef at a season when fed-beef supplies are not so large.

Another important advantage in fall calving is that old and off-quality cows may be marketed in the early spring when the cow market is highest.

As time goes on, we expect to see more cattle producers in the South and Southeast carry their spring calves over the winter, or sell them to feeders. This will be encouraged by local demand for yearling, finished beef. It will fit in with further improvements in grass and legume production and also with increased grain production that may be expected. Possible cotton-acreage allotments could be an important factor in causing more feed production in the south. Peanuts, although less extensively grown, may be in the same category. Oats, wheat and sorghums, of course, will be considered, as well as corn.

More definite planning for winter feed seems to be needed in the South for this program. It is not safe to rely on year-round pastures and, of course, special forage crops will generally be needed to provide winter pastures. In addition, provision needs to be made for hay or grass silage for use whenever it is too wet,

too dry or too cold for grazing. The cattlemen in the South will need to recognize the importance of feed reserves just as they have in other major producing regions.

It is highly important that these calves shall continue to grow and gain all the time. "Shrinking" them, even a month or two, is expensive in the long run on the quality of cattle needed to make efficient gains and the right kind of beef, with maximum use of grass. "Roughing" may be left for the plainer cattle, of which there will be plenty--at least in the near future, when beef supplies are relatively large and cows are plentiful.

Although climatical conditions provide important advantages for beef producers and feeders in the South, the same climate increased the problem of diseases and parasites. Special attention is necessary to avoid or control these hazards. I am sure, however, that you have this in mind and realize how important it is in efficient beef production.

It has already been demonstrated over wide areas that cattle can be produced and fed in the South that will sell in competition with northern beef. The only complaint we have is that there is not enough of it, either for our customers or for our plants.

In summary, I believe the Way Out for the Beef Producer is through producing what his nearest consumer wants, as cheaply as possible. This becomes more important both to the producer and consumer when supplies are plentiful.

As you all know, from personal experience and observation, there have been very few times in the beef-cattle business, or any other large-scaled farm enterprise in this country, when the most efficient, well-informed producers did not make a fairly respectable income for their efforts.

Variations between individuals in their cost of producing calves or feeding cattle are very great. These may be narrowed down considerably in the next few years, as the highest-cost producers give up. Eventually this will accrue to the benefit of those who stay on the job by capitalizing on opportunities to cheapen their costs, plan their marketing and, while prices are lower, improve their herds.

Processors in the East and South certainly hope, and really expect, that as a result of your efforts and the sound opportunity for producing beef in these areas, the industry will not be discouraged but rather recognize the truth of an old saying that "Those who follow the crowd are quickly lost in it."

PROGENY TESTING OF BEEF CATTLE 1/

The value of a progeny test for the improvement of growth rate and conformation in beef cattle depends in a large measure on heritability of these traits. Estimates of heritability of growth rate and type from progeny test of fast and slow gaining sires show approximate values of 20 percent for growth rate and 30 percent for type. A comparison of weight at 182 days with record of performance test of steers for 200 days after weaning and for heifers tested on pasture after wintering on growing rations indicate that weight at 182 days gave essentially the same estimates of heritability as the feeding and grazing test. It is recommended that the top half of the pure bred bull calves available for commercial herds be selected for use. Performance information in commercial herds based on weaning weights and grades can be used effectively for the identification of best sires and for elimination of those that transmit performance that is below average. Extreme selection in which only the top fourth or less are kept may result in less total progress because many bulls that are genetically good may be missed entirely. Because of the large number of sires needed in commercial herds, the potentialities for beef cattle improvement through performance information on all breeding cattle are great.

1/ Presented by C. M. Kincaid, Animal Husbandry Department, Virginia Polytechnic Institute, Blacksburg, Va., at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

BREEDING PLANS THAT FIT THE
COMMERCIAL AND PUREBRED BREEDER

In addressing this group last year on the subject of bull testing, I introduced my remarks by indicating that the most profitable beef cattle were likely to be those that showed the best balance of the following four characteristics: (1) Regular reproduction, (2) heavy weaning weights, (3) rapid and efficient gains in the feedlot or on grass after weaning, and (4) high carcass quality. To these we should probably add another; namely, freedom from hereditary defects. Actually, however, the occurrence of any important hereditary defect as dwarfism automatically lowers the productivity of a herd so far as the four characteristics mentioned above are concerned. Elimination of such defects may require special breeding techniques.

During the relatively few years that beef cattle breeding investigations have been underway on a reasonably adequate scale, certain information has been accumulated which seems to offer excellent promise of leading to more productive beef cattle if intelligently applied by seed stock producers. Obviously, these herds have a predominant influence on productivity of commercial herds but the commercial breeder himself can do certain things to increase his average productivity.

Evidence on the importance of heredity in influencing reproductive efficiency is rather scattered, and it should be borne in mind that there is automatically a considerable amount of selection for efficient reproduction, since cows with poor reproductive records leave fewer offspring in the herd than those that calve every year. However, certain evidence from several of our stations suggests quite strongly that some strains of cattle consistently have a higher percentage calf crop than other strains on the same stations. Evidence from dairy cattle indicates that certain specific reproductive disturbances such as cystic ovaries seem to have an hereditary basis. It has also been observed that cows tend to be somewhat repeatable in their breeding behavior; that is, a cow that misses having a calf one year seems to have a greater than random probability of failing to produce a calf in one or more years later in life.

It would thus appear to be sound procedure for all breeders, both purebred and commercial, to select herd sires from cows and from lines of breeding having a high productive efficiency. Furthermore, it would be to the advantage of both types of breeders to cull ruthlessly among females that fail to calve regularly. Culling of this kind can, of course, be of greater

1/ Presented by E. J. Warwick, Southern Regional Beef Coordinator, U.S.D.A., University of Tennessee, at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

intensity if nutritional and management conditions in a herd are such as to promote good average reproductive performance so that ample numbers of replacements are available to permit culling.

Provided quality does not suffer, weaning weight of calves probably has a great influence on total profit of a beef enterprise than post-weaning performance since a cow has to be fed 12 months out of the year regardless of whether she raises a 300 or 500 pound calf. This is particularly true on farms where calves are sold at weaning either for slaughter or as feeders. The measurement of this important characteristic requires a breeder to keep a record of birth dates of individual calves and to weigh them at weaning time. This is an entirely feasible operation for all purebred breeders and may or may not be possible for commercial producers depending upon the type of operation.

Some may question the adequacy of single weights taken at or near weaning time. Records from a number of experiment stations, however, indicate that calves tend to grow at a rather constant rate through the usual range of weaning ages, namely, 6 to 8 months and that single weights taken during this period and divided by the number of days of age a calf is when weighed give a figure which is easy to calculate and which adequately evaluates pre-weaning growth. If the breeder desires to do more figuring, he can add to or subtract from the actual weight to convert it to a weight at some standard age such as seven months. We commonly do this in experimental herds, but I see no reason why weight per day of age is not a perfectly good basis for comparison among calves in the same herds.

Certain caution must be observed in using these weights as a basis for culling cows or for selection of replacement animals. The first of these is the fact that calves must have been managed the same for weaning weights to mean anything. Present day practices of purebred breeders of calving on a more or less year round basis, fitting some calves and not others, etc., is probably the biggest stumbling block to the use of records. A second factor is sex of the calf. In all herds which have been studied, bull calves have grown faster prior to weaning than have heifers, with the additional weight on the bulls at seven months of age ranging upward to 45 pounds. Comparative growth rates of steers and heifers have been somewhat conflicting with steers being heavier in most cases, although in one body of data where calves were castrated at less than two weeks of age, there was no difference. Seemingly, the magnitude of sex differences varies from herd to herd and possibly between breeds so that it seems best to use data from the same herd in adjusting calf weights to the basis of one sex. Commonly, however, males are six to ten percent heavier than heifers. If calf weights are used as a basis for culling cows, some adjustment of this kind definitely needs to be made else the breeder will find himself culling an undue proportion of cows which had produced heifer calves. Likewise, the age of the cow has an effect upon calf performance. The magnitude of age effects seems to vary from

herd to herd, again necessitating the use of adjustment factors developed in the same herd. However, in virtually all experiment station data studied thus far, there has been a steady increase in the average weights of calves as cows go from three to about seven or eight years of age and after that age a rather sharp reduction. This age effect definitely needs to be taken into consideration or an undue proportion of first calf heifers would be culled and their calves would not have an adequate opportunity to be selected for replacement purposes. The necessity for adjustment can be eliminated if a herd is large enough that cows and their calves can be grouped by age of cow and selections made on a within age of dam basis.

If adequate adjustment has been practiced, evidence from several experiment stations indicates that the repeatability of cow performance is high enough to make culling of low producers a profitable practice. For instance, at the Greeneville station here in Tennessee, a herd of grade Hereford cows was established a few years ago by purchasing a group of 48 heifer calves at a Virginia calf sale. All these cows that survived and calved regularly were kept in the herd through five calf crops, there thus being no selection for weaning performance. A study of the records indicates that if the lower 25 percent had been culled on the basis of first calves, only one cow that was later in the upper half of the herd would have been culled. The average six month calf weights (adjusted for sex) of all later calves from this low 25 percent was 34 pounds below the herd average. If the low 25 percent had been culled after two calf crops, not a single cow later in the top half of the herd would have been culled. Average weights of subsequent calves from these cows were 40 pounds below the herd average.

Selection for weaning weights can be practiced both by selecting the heavy calves for replacement purposes and by culling cows whose calves have low weaning weights so that they have no opportunity to produce further replacement animals. This culling of low producing cows on the basis of first or first and second calf weights is, in itself, a potent method of raising the herd average in the same fashion that culling low producing dairy cows raises the herd average. The breeding of a rather high proportion of the available heifers for one calf crop and then culling rather intensely on the basis of weaning weights of the first calves would add appreciably to the intensity of selection and is a plan to be recommended for purebred breeders. Likewise, within limits this would appear to be a practical procedure for many commercial breeders operating under conditions where it is possible to keep records. However, it must be borne in mind that if a commercial producer went to extremes on a plan of this kind, he would have an undue proportion of heifers in his herd and the total production might be lower than if he took advantage of the increase in calf weights as cows get older by having more mature cows in the herd.

Although much can be accomplished in either a purebred or commercial herd by culling low producing cows and saving replacement heifers that were themselves heavy at weaning, the fact

remains that the sires used over a period of years will in the end exert the predominant influence on productivity of a herd. Both types of breeders should use sires that were heavy at weaning when raised under natural conditions, and from cows with the definite ability to do a good job with their calves. We have several examples in our research projects where bulls have sired offspring of good type and good gaining ability, but whose daughters have poor maternal abilities as judged by weaning weights of their calves.

The next characteristic mentioned - that of being able to gain rapidly and efficiently - has been discussed by Dr. Kincaid in the previous talk, and I believe needs no further discussion here. It is perhaps worthy of emphasis that different studies have varied widely in the apparent heritability of rate of gain. Figures from Miles City, Montana indicated a figure of 65 percent. You have heard Dr. Kincaid's figures. These two studies seem to represent the extremes although data from a Polled Hereford herd at Tifton, Georgia also indicate a low heritability. A recent analysis of data from Bluebonnet Farm at McGregor, Texas gives a heritability estimate of about 41 percent. Periodic weights of potential replacement animals after weaning, whether handled on grass or in the feedlot, are to be encouraged. How an animal gains under conditions on a breeder's own farm should be an excellent indication of its adaptability and growth potential.

Carcass quality is a characteristic of obvious importance to the beef cattle breeder. Research data on this important characteristic is much less abundant than we would like. Much more work is definitely needed on carcass evaluation, particularly studies on relationships between present carcass standards and the ultimate value at the retail level.

I believe we would all agree that the characteristics discussed are desirable in beef cattle although our opinions might vary somewhat as to the relative importance of the different items. I do not believe research work has developed to the point where categorical statements can be made regarding their relative importance. As information accumulates, however, we hope to be in a position to weight these factors according to their economic importance.

The problem of any breeder is to incorporate these factors into his herd in a manner which will lead to the greatest improvement. This is where the question of breeding systems comes in.

Mass selection, defined as the selection of the best animals within a breed for breeding purposes regardless of pedigree is, of course, the most commonly used system. For the present at least, I believe it is the preferred system for most purebred breeders and for virtually all commercial breeders in the more temperate climate areas. If realistic standards are used for evaluating animals so that those considered best are truly the best available, then this system has much to recommend it. The changes in type which have occurred in our beef cattle breeds

largely under this system of breeding would seem to be indisputable evidence for the effectiveness of mass selection for altering type. The figures given on heritability of weaning weights of calves and post-weaning performance indicate that mass selection should be effective in improving these characteristics although as yet we have only limited experimental data to back up this statement.

Inbreeding and linebreeding are variations of the same thing, namely, breeding systems that involve the mating of animals that are related. Everyone here, I am sure, is familiar with the theoretical effects of inbreeding and linebreeding and since we have relatively little direct information from experimental work with cattle, we will discuss the subject only briefly. Several stations both in this region and in other areas of the United States have started inbred lines with various beef breeds. Data on the effects of inbreeding are as yet scattered and we have no reliable estimates of the average effects. Scattered reports suggest, however, that death losses among calves have been considerably higher in inbred lines than in outbred herds. Similar things have been observed in other classes of animals.

It seems probable that with beef cattle as with other classes of animals, inbreeding will inevitably result in somewhat lower productivity with some lines being affected more than others. Thus, inbreds probably will not find any great usefulness in commercial production as inbreds. The experimental work underway and contemplated should, over a period of several years, give us a reasonable idea as to the usefulness of inbred lines for top-crossing and noninbred herds for commercial production and on the productivity of animals produced by crossing two or more inbred lines. Although practical problems remain in the utilization of inbred lines of swine, it is apparent from the data accumulated at several stations in the Regional Swine Breeding Laboratory that crosses of selected inbred lines of hogs have consistently out-produced conventionally bred animals. Whether the same thing will be true of cattle remains to be seen.

The purebred breeder, at least under the presently existing status of the industry, is limited in his breeding procedures to mass selection or to some form of inbreeding or a combination of the two. The commercial breeder has two other alternatives, namely, crossbreeding and grading. Crossbreeding is a controversial subject and one on which, in my opinion, too little evidence is available for unequivocal recommendations.

During the past year we have summarized all known data on crosses between cattle of the Brahman type and British breeds. This work has all been done in what we would consider the Deep South and the results may or may not be applicable to States north of the Coastal areas. Weighted averages of all the experiments conducted indicate Brahman bulls bred to British type cows have on the average produced calves weighing

nearly 30 pounds more at weaning time than calves by British bulls out of similar cows. The crossbred cows themselves when used as mothers on the average produced calves weighing over 70 pounds more than those produced by British type cows in the same herds. Feedlot performance of Brahman crossbreds under experiment station conditions has not been greatly different from that of British types. Likewise, carcass differences have been relatively minor between the two types both at weaning and after a period in the feedlot. It is necessary to point out in connection with these data, however, that certain things of importance have not been adequately assessed. The problem of temperament is probably the principal one of these. Probably related to it is the fact that packers commonly believe they get more bruises on the carcasses of Brahman crossbreds than on animals predominantly of British breeding.

Data on crosses between two or more English breeds is limited and that available is rather conflicting. An experiment carried on several years ago at the Miles City, Mont. station in which Shorthorn bulls were bred to Hereford cows and their daughters in turn bred to Angus bulls with the progeny in all cases being compared with grade and purebred Herefords, showed rather substantial advantages for both types of crossbreds and particularly for the crossbred cows in calf raising ability. Unfortunately, this experiment did not include purebred animals of the Shorthorn and Angus breeds for comparison and it is possible, although perhaps unlikely, that they would also have outperformed the Herefords and that the apparent superiority of the crossbreds was merely a grading up effect.

An eight year experiment conducted at the Ohio station in which reciprocal crosses were made between the Angus and Hereford breeds and the crossbreds compared with purebreds of both breeds showed only small advantages for the crossbreds in either performance to weaning or post-weaning performance in the feedlot or on pasture. Unfortunately, none of the crossbred females were retained to test maternal abilities in this experiment.

At the South Carolina station work is now in progress in which the performance of purebred calves of the two British breeds is being compared with the performance of Brahman crossbreds and British crossbreds produced from similar cows. The data are not voluminous as yet but during a four year period, there have been only small differences in weaning weights between the two types of crossbreds with both crossbreds exceeding the purebreds by substantial margins.

It thus appears that the evidence is incomplete on the performance of British type crossbreds as compared to purebreds or grades. From a theoretical standpoint and reasoning from results from other classes of farm animals, we would expect the crossbreds to exhibit a certain amount of heterosis and to

outperform those of straight breeding. Rather detailed experimental work is needed, however, to determine the magnitude of these advantages, if indeed they exist. From such studies it will be possible to estimate whether the advantages are great enough to offset certain practical disadvantages which we all realize a crossbreeding program has. These relate to carrying on a crossbreeding program in such a manner that it can be systematically followed rather than degenerating into a program of mongrelization. The type of market outlet is another thing to be considered before launching a crossbreeding program. We all know of instances, particularly in feeder calf sales, where crossbreds have sold at less than their real value, possibly because the buyers suspect the presence of scrub or dairy breeding in calves not having color markings of a recognized beef breed.

Grading is the process of breeding scrub, grade or native females to bulls of the same breed generation after generation. It has been demonstrated in many experiments that a breeding program of this type leads rapidly to a preponderance of the characteristics of the breed of the sires used. It is the simplest breeding program for a commercial breeder to follow and if the sires are carefully selected for performance, there is every reason to believe that it is a desirable procedure.

Relatively little research work has been done as yet on beef cattle breeding problems since in the past personnel of most stations either felt that they did not have the financial resources to permit serious research in this field or because they believed there was no possibility of research work leading to better methods than those currently being used by purebred breeders. The passage of the Research and Marketing Act by Congress in 1946 provided a mechanism whereby State experiment stations could engage in beef cattle breeding work in a cooperative venture with other States. We hope that our research is organized on a sound basis and that over a period of 10, 20 or 30 years further worthwhile information will come from it that will be useful to purebred and commercial breeders alike. No one would presently be so rash as to indicate that we have more than scratched the surface on research in this field.

In spite of this fact, however, it does appear that research to date has brought out information which, if intelligently applied by purebred breeders, could easily result in substantial improvements in productivity. Breeders, particularly those that we would consider to be the top breeders in their respective breeds, seemingly have been rather slow to adopt research findings and it sometimes makes us wonder if it will be necessary to raise a new generation of breeders before

research findings will be applied. Most of us here have lived long enough to have observed rather profound changes in breeding procedures followed with other animals and certain crops. I am thinking particularly of poultry and corn. As new breeding techniques have been developed in these species, they have been applied rather widely, and although there are exceptions to this statement, in the main it has been a different group of breeders who have applied the new techniques and virtually displaced existing breeders. Established purebred swine breeders and their registry associations have largely ignored the findings of the Regional Swine Breeding Laboratory and a new group of breeders operating outside the established breed associations are applying these findings and have already captured an appreciable proportion of the commercial boar market. Are we seeing the type of thing here which has already occurred with corn and poultry? Will it be necessary for a similar thing to happen in the beef cattle breeding business or will an aggressive, militant extension program convince breeders of the necessity for applying the results of research?

NEW HIGHLIGHTS OF BEEF CATTLE PRODUCTION 1/

Cattle were designed to convert large amounts of roughages (high cellulose feeds) into edible beef. Approximately 85 percent of all the food nutrients consumed by cattle are derived from roughage feeds in the form of pasture, hay, silage, or stalk byproducts. Therefore the improvement in the efficiency of the production of beef must come primarily through learning how to convert high cellulose feeds such as corncobs, straw, corn stalks, cottonseed hulls, cotton bolls, peanut hulls, sugar cane begasse, peavine silage, sweet corn refuse, corn silage, sorghum silage, grass silage, dry range forages, and pasture into highly efficient growing and fattening rations.

Research findings show that the growth response of cattle is affected greatly by the balance of energy, protein, vitamins, minerals, and other factors available to the animal in its daily feed. Cattle possess a powerful mechanism through rumen bacteria to synthesize many nutrients required for life. The billions of bacteria which inhabit the rumen or paunch—if properly nourished—are capable of breaking down and converting indigestible roughages into a usable form. Therefore in order to properly feed ruminants on high roughage diets, a supplement must be formulated to contain adequate nutrients to nourish the microorganisms in the rumen or paunch and also to meet the daily nutritional requirements of the animal.

Purdue Cattle Supplement A was developed to improve the utilization of low quality roughages and this formula has been effective in supplying the nutrients required for a well balanced diet.

Components of Supplement A

In feeding roughages certain fundamental characteristics and nutritional limitations must be recognized. All the nutrients necessary for making a supplement to completely balance roughage rations for ruminants are not known but a few which should be included are:

1. Protein—Many rations are deficient in protein. Basic research has shown that protein supplements increase the digestibility of roughages. Provide adequate amounts of protein supplement to meet the daily requirements for cattle. Usually 2.25 pounds of a protein supplement such as soybean meal, cottonseed meal, or linseed meal will furnish all of the needs for growing steers. Lesser amounts of protein are indicated, 1 to 2 pounds per animal daily, when the roughage or grain fed furnishes part of the requirement.

Soybean meal, cottonseed meal, or linseed meal can be used interchangeably in the formula of "Supplement A" with equal results. Quality of protein (amino acid) balance is not an important consideration in diets of ruminants, because the bacteria in the paunch can compensate by synthesis for any lack of quality.

1/ Presented by W. M. Beeson, Department of Animal Husbandry, Purdue University, Lafayette, Indiana, at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

Urea is a non-protein nitrogen compound which can be used as a replacement for part of the protein in the diet of cattle and other ruminants. Urea feeding compounds usually contain 4 percent nitrogen which is equivalent to 262 percent of protein equivalent. Actually, there is no protein in urea, but the billions of microorganisms that are contained in the paunch or rumen of cattle can convert urea nitrogen into protein which can be utilized by the cattle. One of the key points in the utilization of urea is to remember that it contains no energy value and that when urea is used to replace part of a protein supplement such as cottonseed meal or soybean meal, it is necessary to add an equivalent amount of energy in the form of grain or molasses or some other high energy feed. One pound of urea has the same protein equivalent as six pounds of soybean meal. Therefore, for every pound of urea that is added to a concentrate mixture to replace six pounds of soybean meal, it is necessary to add five to six pounds of an energy feed such as corn or molasses to make the substitution equal in nutritive value.

Urea feeding is only profitable when the cost of a combination of high energy feeds such as corn or molasses and urea on an equal protein and energy basis is less per pound or ton than the cost of a protein supplement such as cottonseed meal, soybean meal, or linseed meal.

Recent results at Purdue University have shown that cattle can be wintered successfully by using a protein supplement where $\frac{1}{3}$ or $\frac{1}{2}$ of the protein is supplied from urea, and additional energy is added in the form of molasses or grain to compensate for the lack of energy in urea. Replacing $\frac{2}{3}$ of the protein with urea had some depressing effect on the gains in the latter part of the feeding period. These tests show that a combination of 86 pounds of corn and 14 pounds of urea is equivalent to 100 pounds of soybean meal in the formula of Supplement A.

In summary, the following points should be emphasized when urea is used in a feed mixture:

1. No more than $\frac{1}{3}$ to $\frac{1}{2}$ of the protein should be replaced with urea in a supplement for cattle.
2. For every pound of urea added to a mixture, 6 to 7 pounds of a concentrate such as corn or molasses should be added to replace the energy lost.
3. Urea should be mixed thoroughly because it is a toxic compound and at high levels will cause harmful effects.
4. Urea feeding gives the best results in the well balanced diet so that the bacteria have all the nutrients necessary for the synthesis of protein and other nutritional factors.
5. Safe levels to mix urea in feeds are as follows: (1) One percent urea in the total dry ration consumed by cattle; (2) three percent urea in the total concentrate (grain + supplement) fed; or (3) no more than five percent in a mixed protein supplement.
2. Molasses supplies a readily available source of energy, palatability, and inorganic (mineral) factors which have not been fully identified. Excessive amounts of molasses or other carbohydrates tend to depress the

digestibility of roughages. Feeding 0.5 to 1 pound of liquid molasses or its equivalent per steer daily has given good results. "Supplement A" contains 13 to 14 percent of cane molasses or its equivalent on a dry or semi-dry basis. The sugar and ash content of molasses contributes effectively to the utilization of roughage as well as adding palatability to the diet. When fed in small amounts, molasses has about the same energy value as corn but at higher levels this value is reduced to 65 to 75 percent of corn.

3. Minerals—Roughages are deficient in minerals especially salt, calcium, phosphorus, cobalt, and, in some areas, iodine. Bonemeal is incorporated in "Supplement A" at a level of 5/2 percent to supply part of the calcium and phosphorus needs and to furnish the complex mineral assortment occurring in bonemeal. Iodized salt makes up 1.7 percent of the supplement, which has been fortified with one ounce of cobalt per 100 pounds. So far the addition of a variety of other trace minerals has not improved this supplement. Apparently the ash content of the various ingredients furnishes a complex mineral assortment capable of meeting the requirements of the rumen microorganisms and the animal. Research is in progress to study the most effective level of trace minerals. Trace minerals are probably needed if dicalcium phosphate is substituted for bonemeal.

4. Vitamins—The vitamins required in a feed for ruminants are relatively simple, since most of the water soluble vitamins are synthesized in adequate amounts of rumen microorganisms. Poor quality roughages, such as corncobs, straw, and etc., contain practically no vitamin A. "Supplement A" is fortified with a vitamin A concentrate to supply 2250 to 2270 I.U. of vitamin A per pound. Each steer receives approximately 8000 I.U. of vitamin A from 3.5 pounds of "Supplement A." The amount has protected the steers from any occurrence of a vitamin A deficiency. Vitamin D is furnished only as a protective nutrient but is not needed in climates where the cattle are out in winter sunshine.

5. Unknown factors—Alfalfa meal contains some unknown factor or factors which improves the utilization of roughages and significantly increases the growth rate of steers. Feeding 0.5, 1.0, and 2.0 pounds of alfalfa meal per steer daily has significantly increased gain and feed efficiency beyond any extra protein or energy that might be furnished by this small amount of alfalfa. It appears now that the new formula for "Supplement A" will contain some alfalfa meal. Substituting alfalfa meal (dehydrated 17%) for malt sprouts in the formula of "Supplement A" increased the growth of steers on corncobs 0.2 lb. daily. An effort is being made to identify and isolate other nutrients which will effectively improve ruminant feeding.

Results from Using "Supplement A" with Roughages

Corncobs, pop corn cobs, straw, and cottonseed hulls:

When corncobs, oat straw, soybean straw, pop corn cobs, or cottonseed hulls were fed with "Purdue Cattle Supplement A" (3.5 pounds per steer daily), the cattle gained respectively 1.50, 0.93, 0.78, 0.94, and 1.16 pounds daily. These steers required 11.0 lb. of corncobs, 12.4 lb. of oat straw, 13.3 lb. of soybean straw, 13.9 lb. of pop corn cobs, and 19.5 lb. of cottonseed hulls to produce one pound of gain. Formerly a farm waste by-product, the corncob has been raised from a feeding value which was practically nil to a valuable

source of energy for roughing and growing cattle during the winter. The cattle fed on corncobs are not fat but are in excellent shape to go on pasture or to be fed grain and fattened for market. Indiana produces about 1,500,000 tons of corncobs annually and it requires with this feeding program about 1.5 tons of cobs to winter a steer. Indiana has sufficient cobs to winter one million head of cattle. Many roughages can be converted into a valuable live-stock feed if properly supplemented.

Corn Silage:

Two years of experimentation at Purdue University has rather conclusively shown that feeding 3.5 pounds of "Supplement A" per steer daily, along with all of the corn silage (37 pounds daily) that steer calves (weight 480 lb.) would consume, resulted in a gain of 2 pounds or better per head per day at a cost of 15 cents (1951) per pound. Please note that no hay or other dry roughage was fed. Contrary to accepted opinion, cattle can be grown at a rapid and efficient rate without the feeding of dry roughage and/or hay in the diet when silage is properly balanced. No scouring or looseness occurred among the silage-fed steers.

The most striking feature of this experiment was the number of pounds of beef produced from an acre of corn silage (70 bushes of corn per acre - 15 tons of corn silage). Corn silage supplemented with "Purdue Cattle Supplement A" (3.5 pounds per steer daily) produced from 1600 to 2000 pounds of beef per acre. An acre of corn silage produced sufficient silage to feed 5 steers for 6 months. After deducting the cost of the supplement and the cost of putting up the silage, an acre of corn produced a return of \$385.00. This figures out to be an average return of \$5.50 per bushel for the corn marketed through the cattle. The cattle price used to establish these figures was 30 cents per pound, and this is a conservative figure because the steers were worth considerably more than the figure used.

Last year (1952) yearling steers full-fed on corn silage and 3.5 pounds of "Supplement A" per head daily gained 2.5 to 2.75 pounds daily at a feed cost of about 18 cents per pound. With the supplemental feeding program, corn silage produced 1400 pounds of beef per acre which graded choice. After deducting the cost of the supplement, minerals, ensiling the corn and the shrinkage of the cattle to market, an acre of corn in the form of silage made a return of \$341.45. Forty steers from this experiment were marketed in Chicago at a price ranging from \$34.75 to \$35.50 per cwt. Thirty-four carcasses graded choice and six prime (Federal grade) and dressed 61.6 per cent. During the fattening period these steers received an average of 8 pounds of shelled corn equivalent daily from silage, making a total of 21 bushels of corn consumed (146 days on feed).

Half of the nutritive value of a corn crop from an energy standpoint is in the corn kernel and the other half is in the cornstalks, corncobs, and leaves. A large percentage of the feed value of a corn crop is left standing in the field. Probably one of the fundamental reasons why corn silage has never given as good results in previous years is because we have not had the "know-how" to balance the deficiencies of corn silage.

Grass Silage:

Grass silage has not been a popular feed in the Midwest because only recently have we known how to feed it for maximum results. Good results have been

obtained by properly supplementing the deficiencies in grass silage.

Steer calves (beginning weight 480 pounds) fed all the grass silage they would eat (37 pounds per head daily) along with 3.5 pounds of "Purdue Cattle Supplement A" gained 2 pounds a day and the cost of the gain was 18 cents per pound. No dry roughage was fed.

With this supplemental feeding program an acre of grass silage produced from the first crop 1432 pounds of beef per acre (includes supplement) and still there is ample pasture left on the field for the remainder of the grazing season. In dollars and cents after deducting the cost of "Supplement A," the cost of corn used from a preservative and the cost of putting the silage into the silo, this acre of grass silage made a net return over the above costs of \$246 per acre when the steers were priced at 30 cents per pound. We have much more to learn about the proper use of grass silage and also pastures.

In another experiment (1952), fortifying grass silage with "Supplement A" increased the rate of gain approximately 1 pound per steer daily over the steers fed grass silage and minerals but no supplement. When no "Supplement A" was fed (only minerals), grass silage produced 587 pounds of beef per acre. In other words, 509 pounds more beef was produced per acre with grass silage by feeding 1951 pounds of "Supplement A." Therefore it required 3.83 pounds of "Supplement A" to produce 1 pound of beef when fed with grass silage.

Steers can be fattened for market by using grass silage as the only roughage and adding a limited amount of corn and supplement. Yearling steers at Purdue on a feed of grass silage, 40 lb.; shelled corn, 5 lb.; and "Supplement A", 2.0 lb. gained 2.40 pounds daily and should deposit ample fat and marbling to grade choice.

It appears from these data that we have only scratched the surface in exploring the possibilities of converting dry roughages, silages, and pasture into beef. Actually and eventually we should be able to increase markedly the efficiency of beef production on the farms and ranches of this country by "Constructive Feeding" or in other words by proper supplementation of the many roughage crops that apparently go to waste through improper use.

The New Formula is as follows:

"Purdue Cattle Supplement A" (32% Crude Protein)

<u>Ingredient</u>	<u>lb.</u>
Soybean meal	650.5
Molasses	140.0
Alfalfa meal 1/	140.0
Bonemeal	52.0
Salt with cobalt 2/	17.0
Vitamin A and D concentrate 3/	0.5
TOTAL	1000.0

This recommendation does not imply that further improvement cannot be made or that the original formula is not still a useful and effective supplement.

1/ Dehydrated alfalfa meal (17% Crude Protein)

2/ One ounce of cobalt sulfate was added per 100 pounds of salt.

3/ Stabilized dry vitamin A and D concentrate containing 4,540,000 U.S.P. units vitamin A per pound and 567,500 U.S.P. units vitamin D per pound.

PANEL
ON
CREEP-FEEDING

CREEP-FEEDING OF BEEF CALVES 1/

Generally speaking, creep- feeding is advisable under the following conditions: (1) producing and marketing purebred breeding stock; (2) raising and selling feeder calves; and (3) marketing calves for slaughter within a few months after the calves are weaned. Sometimes it pays to creep-feed the calves when a number of them are from "first calf" heifers. It helps to even the calf crop somewhat.

Purebred breeders should have their calves and other young cattle look attractive to the buyers at all times. The extra bloom and condition resulting from a creep-feeding program is a "must" for the breeder selling high quality breeding stock.

The bloom and additional fat resulting from creep-feeding will usually cause feeder calves to grade a little higher and be more attractive to buyers. Feeders in New York State tell us that they want thin calves with quality, nevertheless, they always pay more for the fleshy calves with the extra bloom.

Home grown grains, such as corn and oats, supplemented in the latter part of the creep-feeding program with a protein supplement, makes a satisfactory creep ration. Experimental work conducted at Cornell University did not show any advantage from feeding aureofac or the administration of aureomycin to calves over 2 to 3 months of age.

It does not pay to creep-feed calves that are to be roughed through the winter and turned to grass the following spring.

Although creep-feeding is a recommended program for many of our breeders, one should keep in mind that good pastures and milking qualities of the brood cows are far more important than any other factors in producing fat calves at weaning time. Records in the Beef Production Project in New York State, where weaning weights have been taken on cooperator farms for several years, show that creep-fed calves have outweighed those not receiving grain during the nursing period by only 15 pounds per head. Actually some of the heaviest groups of calves were not creep-fed. The producers of these calves used good pastures and had culled cows from the herd that did not raise a big, fat calf.

1/ Presented by Myron D. Lacy, Professor of Animal Husbandry, Cornell University, Ithaca, N.Y., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

Of course, creep-feeding will increase the weights of calves, but good grass throughout the grazing season and milking qualities of the brood cow herd, along with quality breeding stock, should get first consideration in the cow and calf program.

CREEP-FEEDING AS IT APPLIED TO KENTUCKY CONDITIONS 2/

Creep-feeding is a must for registered cattle since they need to be ready for exhibit to prospective buyers at all times.

1. Creep-fed calves have more size for age.
2. Creep-fed calves are more uniform in size.
3. Creep-fed calves reach maturity at an earlier age.
4. Creep-fed calves sell higher.
5. Cows look better and weigh more when their calves have been creep-fed.

Creep feed is not recommended for the average Kentucky Cow and Calf Plan calf.

This calf is a milk fat calf weighing approximately 600 pounds at 9 to 10 months of age. It is produced by breeding a heavy milking cow (usually a cow with some dairy blood) to a beef type bull so the calf will be dropped in December, January or February and sold off the teat in the fall. No grain is anticipated for either the cow or the calf unless the milk flow is diminished due to drought, disease or parasites in which case, feeding may be necessary to either or both.

Creep-feeding of grade beef calves may or may not be recommended, depending on circumstances.

1. Creep-feeding is recommended -
 - a. When calves are to be sold as fat calves for slaughter.
 - b. When calves are to be fed out as baby beefes.
 - c. When calves are to be on full feed after they are weaned.
 - d. When cows fail in their milk.
 - e. When calves are to be sold at weaning time for a price that will show a profit over feed and labor costs.

2/ Presented by Ray C. Hopper, Field Agent in Animal Husbandry, University of Kentucky, Lexington, Ky., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

2. Creep-feeding is not recommended -

- a. When cows are giving a heavy flow of milk and calves are small.
- b. When calves are to be kept over, roughed through the winter and grazed the following summer.
- c. When the feed and labor costs exceed the value of the extra pounds.
- d. When sheep or hogs have to be pastured in the same field.

CREEP-FEEDING OF BEEF CALVES 3/

There is a difference of opinion as to the value of creep-feeding beef calves in commercial cattle production. Two questions should be considered in determining the value of creep-feeding. First, will the extra gain produced on calves pay for the cost of feed and second, will the grade of calves be increased by creep-feeding? Morrison reports that in 27 tests of creep-feeding, the calves which were creep-fed while nursing their dams gained 1.82 lb. daily which was a .39 lb. more than others not creep-fed. The difference in total gain per calf for these trials, which averaged 153 days in length, was 60 lb. The total amount of grain and other concentrates consumed was 532 lbs. or 887 lbs. per 100 lbs. gain. In 19 tests in which selling prices were reported, the creep-fed calves were worth \$1.27 more per hundred weight at weaning time.

In 1940 cooperative studies were undertaken at North Carolina State College to determine the value of creep-feeding calves. The same bull and cows were used in a two year trial but the cows whose calves were creep-fed in the 1940 test were placed in the group whose calves were not creep-fed in 1941 in order to account for any variation in milking qualities of the cows. The calves were fed for 116 days in 1940 and for 87 days in 1941. Corn, oats, and cottonseed meal were fed in the creep according to the following schedule: Age of Calf - 2 to 3 months. Grain Mixture - Shelled corn, 2 parts, oats, 1 part. Three to five months - shelled corn, 8 parts, cottonseed meal, 1 part. Five to ten months - shelled corn 10 parts, cottonseed meal, 1 part. Five to ten months - shelled corn 10 parts, cottonseed meal, 1 part. The calves were taught to eat prior to starting the experiment and the creep was located in the shade near

3/ Presented by Jack Kelly, In Charge, Animal Husbandry, North Carolina State College, Raleigh, N.C., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

water, both groups of cows and calves were on good quality permanent pasture throughout the trial. The average age of both groups of calves at the beginning of the experiment was two months with the group being fed averaging 202 pounds with the group not being fed averaging 204 pounds.

The creep-fed group gained an average of 258 pounds with calves not being fed gaining an average of 201 pounds or 57 pounds less than the calves being fed.

The creep-fed calves consumed an average of 303 pounds of corn, 65 pounds of oats and 23 pounds of cottonseed meal at a cost of \$12.39 at the present price of feed. This means that the extra gain of 57 pounds cost \$12.39 or \$21.73 per 100 pounds gain.

This experiment shows that creep-fed calves made more rapid gain, however, the cost of \$21.73 per hundred pounds means that calves would be required to sell for more than \$21.73 in order to pay the cost of feed.

Study of Feeder Calf Sales in North Carolina for the past two years would indicate that as a rule there is a relationship of grade and weight with calves in the heavier group grading higher than those in the lighter group. The following is a summary of the Feeder Calf Sale held at Rocky Mount, N.C., September 1952, that shows the relationship of weight and grade.

Grade & Sex	Number	Average Weight	Average Per Cwt.	Average Per Head	Difference in Price Per Head
Fancy Steers	14	536	\$34.72	\$186.00	
Choice "	103	516	32.44	167.39	-18.61
Good "	129	459	26.85	123.20	-44.19
Medium "	54	437	25.11	109.62	-13.58
Fancy Heifers	10	520	34.80	180.94	
Choice "	38	471	34.26	161.50	-19.44
Good "	53	446	31.60	140.99	-20.51
Medium "	22	381	25.33	96.57	-44.42

Conclusions and recommendations:

1. Creep-feeding produces calves suitable for slaughter at a minimum expense for feed, because young calves require less feed per pound of gain in live weight than older calves.
2. Adds weight and finish to calves.
3. Helps to make the calves in the group more uniform in size.
4. Pays to creep-feed calves if cows are poor milkers.
5. Creep-feeding as a rule will not pay if the breeder has good pasture and his cows are good milkers.

CREEP-FEEDING OF BEEF CALVES 4/

Other members of this panel have stolen most of the ideas I had to offer on this subject. In Connecticut and the Northeast, our herds are small and purebred establishments. We do not have calf sales, or livestock auctions for beef cattle. Our cows can only produce one calf a year. Our bull demand is low. Therefore, we have many steers.

Individuals sell direct from cow at weaning to people who buy one or more for fattening for home freezers. Many go to 4-H Club members for our Baby Beef Program.

The breeder, therefore, likes to get weight on his weaned calves. Corn and oats as grain, home produced, is fed in creeps. Late July or early August is the time to start when pastures dry up, cows drop in milk, flies and heat tend to slow up the daily growth and gain. In other words, breeders try to hold the baby fat on their calves. To keep the calf, gaining, and to get the calf on grain, in order to reduce the shock of weaning. By creep-feeding the calf becomes more self sufficient and less dependent on his mom. Thus the dam dries off easier, tends to pick up in flesh. We figure that an animal going into the winter in good condition is half wintered. We do have 5 - 6 months barn feeding annually. We all like neat cattle. Our grasses are excellent for pasture, ensilage and hay. We do try hard to make the most of home grown crops with little purchased grain. Purebred heifers are grained throughout the first winter. From then on, it depends if she goes into the herd as a replacement, for show or sale, what her feeding program is to be.

We feel the extra weight to bloom makes our steers acceptable to the public and pays dividends.

CREEP-FEEDING PUREBRED BEEF CALVES 5/

Purebred breeders occupy a specialized field of production which differs from commercial cattle production. They sell cattle of all ages, from calves to mature animals, and buyers are always interested in buying good growthy animals carrying sufficient flesh to be attractive. Creep-feeding of calves aids in their development and makes them more salable, and personally I would say that creep-feeding is a must in most good purebred

4/ Presented by D. C. Gaylord, Ext. Animal Husbandman, University of Connecticut, Storrs, Conn., at the Interregional Livestock Production & Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

5/ Presented by E. A. Livesay, Prof. Animal Husbandry, University of West Virginia, Morgantown, W. Va., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

herds. It is usually an easy matter to have calves 50 to 75 pounds heavier, and grading one-half of a grade higher at weaning time (6 to 7 months of age.)

The type of feeder to be used is not as important as its location and the kinds of feed available. Some breeders use a very inexpensive type of feeder, such as a good box type trough placed between two posts with a V type cover for protection. A fence surrounding this trough with two or more openings, and your feeder is complete. It is better to build the surrounding fence with a 10-foot clearance than to build the fence too close to the trough.

Other and much more expensive types of feeders, which do not require fencing, can be purchased or build, however, they do not do a better job than the cheaper feeders. They do have some advantages, such a movability and capacity for feeds which will last for several days.

The location of the self-feeder is very important. I have heard breeders state that they could not get calves to use a self-feeder. My experience has been that calves will readily start to using a feeder, if the location is near the watering or salt-ing place, and if possible a shady place. Cows will come to such a place for water and salt, and within a few days calves are using the feeder.

The feeds to be used may vary slightly, however, a mixture of one-half fresh cracked corn and one-half rolled oats is hard to beat. Whole corn and whole oats may be used after calves are well started. If pastures are poor and the cows are not milk-ing well, I would suggest adding 1 pound of either soybean meal, cottonseed meal, linseed meal, or a mixture of two or more of these to each 6 to 8 pounds of the above mixture. It is very important that the feed is fresh and kept before the calves at all times.

The age to start creep feeding may vary in accordance with local farm conditions, however, most cattlemen like to start creep-feeding around two months of age. Winter creep-feeding may start a little earlier, and three months is about the limit in age to start summer creep-feeding.

PLANNING YOUR MEETING WITH VISUAL AIDS

1. Use slides or movie only when they fit into the objective of the meeting. Don't just have a show. They are tools. Use visual aids at the right time in meeting.
2. Study your slides or movies before meeting time. Plan your talk with an introduction concerning the slides or the film. Raise some questions which you expect may be answered or which may cause disagreement in the film.
3. Be sure your slides are stacked exactly as you want them so they will be in order and not upside down.
4. Set your machine and screen before meeting starts. Test it. Arrange seats so that all can see screen well.
5. Arrange for a good operator for slide or movie machine, or stand near the machine and operate it yourself.
6. Use local slides where possible even if you have a better picture from headquarters. Don't use too many.
7. Movies may be secured from your local Film Library. Catalog available. Many commercial films are good and sent free. Be sure the advertising is O.K. before you show commercials.
8. Preview the movie so as to know its good points. Plan to discuss it. Raise some questions before the film is shown.
9. Be sure your machine will operate before going to meeting. Know how.
10. Run movie through - then discuss it.
11. Run it the second time if there are questions. Then discuss again if necessary.
12. Did the film teach? Will people avoid what it said to avoid? Will they do what it said do?

Summary of talk presented by Ralph C. McDade, Visual Aids Specialist, University of Tennessee, Knoxville, Tenn., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

RELATION OF EXTENSION WORKER
TO
LIVESTOCK PRODUCER 1/

In any discussion of the relationship between two groups, regardless of how closely they maybe affiliated, I think we first need to look at just what the two groups are which we plan to discuss. Just what do we mean and what do we think about when we refer to each one.

LIVESTOCK PRODUCER --- in the business of production--for profit--in a field in which he can control neither the price he pays nor the price he receives--success depends upon his ability to manage and his knowledge of his business, its methods, and their efficient application.

EXTENSION WORKER --- in business of obtaining information--analyzing its worth--how to apply it--and distributing the same to the livestock producer. In short, he is a business of SERVICE.

To fully understand what I mean when I refer to the Extension worker, let's broaden the picture and break it down into component parts. The Extension Service is a part of our Land-Grant College system, which to me is composed of three phases of our discussion on relationship. These phases are:

1. The College -- the animal husbandry department at it relates to the livestock producer, which does classroom work and study, trains workers, technicians, and specialists, and in general acts in an advisory capacity.
2. The Experiment Stations -- charged with the responsibility of research, the finding of techniques and methods which are best, most efficient, and most practicable. This is the source of information and educational material for classroom study and training, as well as the source for the extension worker.
3. The Extension Service -- as its name implies, to extend or distribute and disseminate information and findings to the individual producer. The link between the producer and the researcher, the teacher who gives out the HOW, WHEN, WHERE and WHY of findings and developments.

1/ Presented by Tom Hitch, President, Tennessee Farm Bureau Federation, Columbia, Tenn., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

These three must be thought of as a Unit or a Team; one without the other to the producer is useless, but working together they play a vital part.

The problems of the livestock producer are many. The road from breeding a cow to getting beefsteak on the table for the consumer is rough and treacherous. Breeding, feeding, and marketing are fields within themselves, each with many problems and all of which must be faced by the livestock producer. Research and study by specialists, devoting full time, is the producer's way of meeting the challenge of these problems.

Research in the past has been devoted largely to the production phase; that is breeding, feeding, and related problems. Through developments of research we have improved our livestock. More meat is produced quicker and more efficiently. That meat is of a better quality and more nutritious. We have learned and are applying disease control measures which in themselves may mean the difference between profit and loss to the individual producer. Methods of feeding have changed considerably in recent years and play an important part in our increased production of meat per animal unit. It has been estimated by the American Meat Institute that our production per animal unit has increased over 20 percent in the past 25 years. I believe this has been largely due to research and the application of that research by producers. This increase was speeded up by the extension worker and his methods of relaying information from the scientist to the farmer.

But, let's not forget that the livestock producer must put his meat and meat products on the market before he realizes any material advantage from those gains in production. Unless carefully and properly done, all his gains in production can be easily lost at the market place. In this field, it seems to me, are the important and pressing problems of research which lie ahead. Accomplishments have been made, yes, but much remains to be done. Livestock producers are looking to the extension worker for the answers to many questions. Some questions might be--What type animals can I sell best? What condition of fat is most profitable for me to produce? Where is my best market? When? Why? Should I sell at auction, terminal market or direct to the packer? Should producers market cooperatively? What is the possibility of new markets for our products? And many others.

When we recognize that 62 percent of our meat is produced West of the Mississippi River and 69 percent consumed East of it; that the South is rapidly changing to livestock farming and expects to assume a prominent role; and that in the last 45 years meat consumption per capita has decreased from 163 pounds in 1908 to about 145 pounds now, then we see many problems

and questions, which must be answered and those answers put to use by producers.

What is the relation of the extension worker to the livestock producer? The extension worker is the go-between, the filler of the gap, the coordinator between research and the farmer. It has been said that it takes from 10 to 15 years to get farmers to apply the findings of research on a scale sufficient to affect production. The Extension specialist and the county agent through information, understanding, and cooperation can shorten this period of ineffectiveness. To shorten this gap takes close relationship between the extension worker and the producer, and a recognition that the extension worker is ---

1. A student -- willing to learn and keep up with current research findings and developments--willing to learn the problems of the livestock producers--and willing to learn how to fit them together.
2. A salesman -- selling himself and his knowledge to the farmer in such a way as to gain confidence in his teaching.
3. A teacher -- getting his message across in groups or individually by various methods which must be quick and effective.
4. A public relation expert -- obtaining understanding and cooperation of the many segments of our economy and among the people with whom he works.
5. A public servant -- knowing his is a place of service dependent upon the producer and his co-operation.

Failure to recognize these basic facts can mean failure in the chain of progress for both the worker and the producer--recognize and understand them and the achievements of agriculture are unlimited.

LIVESTOCK EXTENSION PROGRAM IN MISSISSIPPI 1/

As livestock specialists, our chief responsibility, we feel, is to train the county worker how to do livestock work. They, in turn, promote livestock programs with the people.

The county workers, in the last analysis, constitute the foundation on which the Extension Service functions. They, therefore, are the key people in our organization. The agents and the people develop and anchor their programs to the farms and communities. Their local programs, taken together, portray the breadth and meaning of State Extension plans and services. Since the county programs embrace the views of the people, a fine working relationship exists between them and the Service.

Specialists employ various methods in helping the agents motivate their programs and plans. Conferences between the agent and specialist is one of the preferred methods because, in this way, the two individuals become better acquainted. Bulletins and circulars dealing with practices, methods and techniques are an essential service. Such material should interpret research to the extent that the agent can use it in formulating action programs.

The specialist must also help the agent acquire practical "know-how" to supplement his farm experience and college training. Special arrangements must be worked out for this type of practice work and this accounts for the fact that too little is done.

Specialists can also be of help to the agent in selecting courses for in-service training. This should tend to increase the agent's basic knowledge of farming and livestock production. The practical kinds of animal husbandry training mean more for the average agent than formal courses. The agent who does livestock work must possess that "know-how to do the job" skill, if he commands the farmers' support and respect.

The new agent, in being oriented, should be advised that his success with livestock programs will depend, to a considerable extent, on the use he makes of subject matter materials and services. This is the only way he can get the guidance he needs in evaluating and interpreting livestock situations he meets daily.

County workers and Extension specialists nearly always have the aggressive backing of their producers and breeders. Also, the administrative and supervisory staffs are always counted on to back livestock work at both the State and county levels.

These situations show, we believe, why county agents, as the key group in the Extension program, greatly influence the kind of programs we sponsor.

1/ Presented by Paul F. Newell, Extension Animal Husbandman, Mississippi State College, State College, Mississippi, at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

The agent who enjoys the confidence of his people renders a fine service. The agent who is well equipped and eager to serve possesses that self-confidence required. The popularity of a county worker is reflected throughout an Extension organization.

It's mandatory, then, that the agent be given every possible opportunity to improve his ability to do Extension livestock work.

A Changing Agriculture

Southern agriculture is shifting gradually but surely to mixed farming. Livestock production as a business must share more than ever in the general economy. It is an established fact, therefore, that animal husbandry is a major field that must now be given more attention in the overall Extension effort.

Extension work is primarily a teaching job. The best teacher, we are told, is one who, as the result of his training and experience, is able to do himself what he is trying to teach. The county agent, as a teacher, is able to inspire and lead in those areas where he is best trained. Many agents fail to get basic animal husbandry courses in college. Also, many who did have these animal husbandry courses missed the practical aspects in their training. But, nearly all agents are called on to do livestock work.

In livestock Extension work, a superior type of leadership will be possessed usually by those agents who can (1) throw a calf, (2) dehorn a cow, (3) castrate a calf, pig or lamb, (4) shear a sheep, (5) mix a good ration from farm grown feeds, (6) judge, grade or evaluate market classes of cattle, hogs and sheep.

If he can do these things, he possesses that confidence required when he gives help and counsel to his producers.

If he has not been trained to do the practical jobs, his activities will naturally incline to those fields in which he can operate with full confidence.

As specialists, we are prone to complain about apparent lack of livestock interest on the part of some agents. Mainly, this is the result of insufficient livestock training rather than lack of interest on the part of the agent.

The specialists's opportunity, therefore, is clear. It is within his province to change such situations. It offers a vast opportunity. Practical training of this type is indispensable. Then, our bulletins should support the agents' program with practical suggestions the agent can use in his daily work.

Achieving a Program

Since county livestock programs are built primarily by the local agents and the people in the county, the support of Extension programs stems from committees and associations which function in each county. Basically, all animal husbandry Extension programs revolve around the farming pattern and systems of livestock management which the agent and his people must fully understand.

Various tools are employed in advancing programs. All should be tied to getting practical results and greater efficiency in cattle, hog and sheep production.

The major effort in animal husbandry is to help the farmer to employ these practical methods by which he can increase his livestock income.

The county livestock association is one of the good aids the county agent can use in working with all his livestock groups. To be fully effective, the agent must help direct these groups along constructive lines.

The agent, backed by his county association, can get results in feed production plans in a county. County-wise programs for pasture improvement can be worked out. Silage can be given a new emphasis in a cow-calf business and for steer feeding. Hay production can be promoted. Corn and oat production can be tied to plans for finishing hogs and steers.

A good livestock show can be made possible in each county if sponsored by the local association. It will result in better methods for improving the livestock of the area.

County livestock field days can be organized on farms where good practices are followed. Livestock judging contests at such events provide high interest and are educational. Graded "feeder cattle" sales, where the quality of cattle justifies, are useful. Graded lamb pools are a must to get the high dollar for sheep producers.

Where 4-H livestock work can be maintained on a high level, livestock interest is always above average.

Need Efficiency Now

Particular emphasis is needed now on ways to reduce livestock production costs. In our state, we are making efforts to improve livestock management practices; especially do we try to impress upon new, inexperienced producers the importance of practical "know-how" to be successful.

We stress the use of more land for pasture, roughage, and grain production to support the larger livestock populations. All our programs emphasize the need to produce a reserve of feed and to avoid overstocking.

Cattle expansion, evident on all sides until recently, was reflected in many new herds. As cattlemen held back their heifer calves to increase their herds, we cautioned that feed shortages could upset the price structure.

Commercial hog production, tied to certain areas and farms, was cut short by poor corn production in 1952.

Sheep numbers increased because more producers held out their own replacements.

Further expansion of the livestock business depends, we counseled, on a larger feed production. Livestock numbers are already ahead of the feed supply.

Livestock improvement was a major theme. The registered cattle, hog and sheep enterprises, essential to improvement, continued to expand through 1952, but is shrinking now. Animal husbandmen and county agents render assistance to breeders and associations in the placement of registered stock and to stockmen in locating needed breeding animals; assist cattle breeders in conducting sales of registered cattle, hogs and sheep.

We work with producer associations in marketing feeder calves and spring lambs. We grade feeder calves and market lambs and sheep in many pools each year.

We emphasize junior livestock work and county and assistant agents enroll large groups of boys in beef cattle, pig and sheep clubs. The members feed individual animals or groups of animals. A few conduct demonstrations with herds of cattle and hogs and flocks of sheep they own.

Specialists work with county and assistant agents in many phases of management involving herds and flocks, steer feeding, cattling-and hogging-off corn and soybeans.

Specialists work with county and assistant agents and producers on programs relating to the control of livestock parasites and diseases, emphasizing good feeding and management as a major phase of successful programs.

Specialists work with county agents and producers in improving livestock equipment.

We assist breeders, producers and livestock show and fair directors in conducting livestock departments at fairs and livestock shows.

PANEL ON
THE PLACE OF THE FEEDER CALF AUCTION
DEMONSTRATION AS AN EDUCATIONAL TECHNIQUE

FEEDER CALF SALES AS AN EDUCATIONAL TECHNIQUE 1/
IN MISSISSIPPI LIVESTOCK PROGRAM

Before launching into the main features of this subject, a few remarks on the background of beef cattle in our State will possibly be in order. Back as late as 1930 most of our farm income was based on row crops. There was at that time, about 970,000 head of cattle in the State. Census reports January 1, 1953 indicated approximately 1,900,000 head of all cattle and calves.

Along with this quick development many problems naturally arose in proper marketing. Auction markets sprung up all over the State to about 70 in all. These auctions were not especially interested in new methods of marketing even though prices on good and choice calves would show sharp decline during the fall months of heavy runs. Demand for our better calves has in recent years been very good from the Eastern Corn Belt. Quite a few of our best calves from 16 different points have been going there in small lots through small feeder buyers patronizing auction sales where they are sold one at a time.

Preferential freight rates, less feed and shrinkage, and distance to the above territory is highly favorable to our area.

Efforts on the part of Extension leaders in both production and marketing were necessary in furthering special feeder calf sales, where the better calves could be offered in larger lots of selected quality and thereby attract the larger feeder buyers.

The sales have demonstrated to both producers and buyers:

1. That Mississippi is producing calves of quality and breeding.
2. That we offer a two-way type of cattle that will do well in the feed lot.
3. That plain cattle and calves without quality have only one way to go.

1/ Presented by J. S. McKewen, Assistant Livestock Marketing Specialist, P.O. Box 4568, Fondren Station, Jackson, Miss., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

4. That cattle without quality have no place in a feeder calf sale.
5. That buyers in well organized calve sales offer best prices for only top quality.
6. That calves under 350 pounds are not in demand as feeders.
7. That only polled or dehorned cattle have an outlet as feeders.
8. That bull calves have no place to go except to the packer.
9. That by selling top calves for feeders will lighten the load for packer consumption and thereby strengthen the market for other grades of fat calves.
10. That only the knife or an elastrator are recognized as sure methods of castration.
11. That good pastures and plenty of feed will pay big dividends in the production of quality cattle.
12. That only good high grade cows and top quality bulls will produce desirable feeder calves.

THE CALF SALE PROGRAM AS AN EDUCATIONAL WAY FOR 2/ ACCOMPLISHMENTS AND GUIDANCE IN PRODUCTION

Beef cattle have become an important part of a diversified agricultural program in Georgia during recent years. Marketing has been largely concerned with fat slaughter calves and grass fed yearlings. This program has been a logical one in the past as a large percentage of commercial beef herds were graded up from cows of dairy and mixed breeding mated to pure-bred beef bulls. The average quality of Georgia cattle has now been improved to the point where quality feeder calves and yearlings are available in sufficient numbers to attract buyers from the cattle feeding States. A series of six feeder calf sales was held in 1952 with gratifying result. Twelve sales were scheduled for 1953 covering all sections of the State. They will be held in the short period from August 17 to September 3rd inclusive in order to enable order buyers to conveniently attend several sales with the minimum of time involved.

2/ Presented by Charles E. Bell, Jr., Livestock Specialist, Georgia Agricultural Extension Service, Athens, Ga., at the Interregional Livestock Production and Marketing Conference, June 15.- 19, 1953, Knoxville, Tenn.

Although the promotion of a more profitable marketing program is always of concern to the Extension Service, we feel that the greatest justification for Extension participation in this program is the educational value derived from these events. We know that the numerous fat steer show-sales held in Georgia over the past two decades have been a very important factor in promoting the improvement in quality of our cattle. We believe that feeder calf sales can speed up the educational program aimed towards improved management practices in addition to better breeding. The most effective way to convince a farmer is to create for him an opportunity to see for himself the difference quality makes in his pocketbook. Some of the educational objectives we are aiming at are as follows:

- (1) Breeding for winter and early spring dropped calves - Experimental studies have demonstrated that early calves make faster and cheaper gains than late spring calves. The development of a successful winter grazing program in Georgia has made it practical to breed for December and January calves. Early calves can be marketed in the summer months before the seasonal break in prices which usually comes in September. This is encouraged by scheduling the sales in late August.
- (2) Marketing heavier calves - Too many lightweight calves have been marketed in the past. Since the brood cow must be maintained for 12 months to produce one calf, it is essential to sell as many pounds of calf per cow as possible to make it profitable. Heavier calves can be produced by early calving to take advantage of the most favorable grazing season with supplemental creep-feeding where needed. Feeder sales emphasize the increased returns from heavy calves.
- (3) Improved breeding - Last year's sales brought out the value of improved breeding very forcibly as there was a close correlation between quality and price received. Many farmers expressed to me their realization that improved breeding pays as a result of their experience at the sales.
- (4) Knowledge of the feeder grades - Most Georgia farmers are fairly familiar with the slaughter grades as a result of the fat cattle shows and weekly auction sales. They are not familiar with feeder grades. We believe that a knowledge of feeder grades is important to enable them to do a better job of selection and breeding. All animals in the feeder sales are graded by official U.S. Graders and market with a paint brand for easy identification. Grading contests have been held at a few sales in which the public got a chance to participate. These contests have proven very educational as they were preceded by a grading demonstration and discussion. Another feature which has been helpful is that grading is now being done in the arena as the cattle arrive, which enables the audience to observe while seated in comfort.

- (5) Culling the cow herd - Culling the cow herd goes along with the use of good type bulls in producing better cattle. Demonstrations are being conducted in more and more of the counties served by these sales. A commercial herd is selected by the county agent for the demonstration and the specialist actually goes thru the cows with calves by their side and selects the animals to be retained. The county is responsible for getting the farmers to attend,
- (6) Castration and dehorning - Many Georgia farmers still have not learned the value of castration and dehorning. These sales teach this lesson very forcibly.
- (7) Selling in graded lots - Georgia farmers have never sold cattle in pooled lots by grade, although grouping of hogs for sale by grades with mixed ownership has been a long-standing practice. It will take time to convince our people the value of this method of calf marketing, but it can be done through the medium of feeder sales.
- (8) Development of yearlings - Georgia's beef industry will of necessity be based on a grass economy. It is becoming increasingly apparent that we can profitably grow out more of our calves into yearlings for marketing off grass. The feeder market offers another outlet for this type of cattle.
- (9) Improved relationship with market operators - The many weekly livestock auction markets in Georgia have sprung up in recent years without any coordinated planning. In many cases the operators who are most independent owners have not been too cooperative with Extension educational programs. Our feeder sales are held jointly by the Extension Service and the market operators. The Extension specialists handle the National and State-wide advertising, coordination of dates, grading service and educational features. The market operator is responsible for the mechanics of the sale and local advertising. Advertising and other expenses incurred by the Extension Service is charged to the market operators on a pro-rata basis. Details of the sales are worked out at a meeting of Extension workers, commercial agricultural workers and market operators which is held in March prior to the sales season.

As the program progresses year by year, we expect to tighten up on our restrictions. At the present time, we realize that the bulk of our farmers would refuse to cooperate if we forced them to return their lower grade calves to their farm. Therefore, we permit them to sell these rejects after the feeder sale is over. Fortunately, we have a good outlet for medium and common grade stockers. Education is a continuous and sometimes slow process, but we believe we have a program that will help us reach our goal and one that fits local conditions. We must ever be on guard against letting the mechanics of the sale crowd out time for the educational features.

DEMONSTRATION OF A WAY OF MARKETING FEEDER CATTLE 3/

Gentlemen, we in North Carolina are fairly new in the feeder calf marketing business. We do have some sales that have been operating for eight to ten years, but we have operated our sales on a State-wide co-ordinated basis for only one year. Since we are new in this project, it may be that some of my figures and observations will not apply to many States present.

In presenting our views on this subject, I am going to use some figures from our own feeder calf sales and from a livestock marketing survey conducted in our State in 1950-51 by Dr. Walter P. Cotton.

As the first step in considering the value of a feeder calf sale as a demonstration in a way of marketing feeder cattle, let's look at all the different ways of marketing available to a farmer. In North Carolina we found in 1950 that:

24.1	percent of the feeders were sold through the local auction barn
32.0	" " " " " direct from producer
12.0	" " " " " to feeder
31.9	" " " " " to country truck buyers
	by other methods

Of the other methods, I would estimate that less than one percent were shipped to terminal markets and the rest sold through feeder calf sales. Our feeder sale percentage has increased since 1950.

If these are the accepted ways of marketing feeder cattle, what can we demonstrate in the feeder calf sales that is not demonstrated in the other ways of marketing feeders and that would have educational value? There are many things we could list but I am going to limit myself to three main points that I think we can demonstrate.

1. Value of Grading: At the top of the list I am going to list grading. In our own state the feeder calf sales are the only place where feeder cattle are graded and sold by grade. I believe that our sales are an outstanding example of the value of grading feeder cattle, or any cattle for that matter.

I am not sure if our Division of Markets graders do an outstanding job, or if our buyers know so little about cattle that they rely on the graders!

3/ Presented by A. V. Allen, Extension Animal Husbandry Specialist, North Carolina State College, Raleigh, N.C., at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

judgment. At any rate, our calves sell by grade as is illustrated here in two examples of our 1952 sales--one a small sale, and the other our largest sale. Let's look first at the Sanford sale.

Sanford Feeder Calf Sale

1952

<u>Grade & Sex</u>	<u>No.</u>	<u>Av. Wt.</u>	<u>Av. Cwt.</u>	<u>Av. Head</u>	<u>Difference</u>
Fancy steers	2	438	\$38.14	\$166.85	
Choice "	28	477	32.03	152.83	-14.02
Good "	43	452	27.17	122.91	-29.92
Medium "	32	425	23.94	101.66	-21.25
Total "	105	450	\$27.82	\$125.25	
Fancy heifers	--	--	--	--	
Choice "	4	432	\$38.48	\$166.44	
Good "	9	382	36.16	138.01	-28.43
Medium "	19	360	31.89	144.98	-23.03
Total "	32	375	\$34.06	\$127.89	
Total sale	137	433	\$29.08	\$125.87	

At West Jefferson, our largest and oldest sale, the calves again sold by grades.

West Jefferson Feeder Calf Sale

1952

<u>Grade & Sex</u>	<u>No.</u>	<u>Av. Wt.</u>	<u>Av. Cwt.</u>	<u>Av. Head</u>	<u>Difference</u>
Fancy steers	19	446	\$30.08	\$139.53	
Choice "	171	431	27.15	116.92	-22.61
Good "	190	426	26.12	111.32	-5.60
Medium "	109	399	22.72	90.73	-20.59
Total "	489	422	\$25.94	\$112.34	
Fancy heifers	21	427	35.66	151.70	
Choice "	108	402	31.10	125.21	-26.49
Good "	187	424	25.34	106.01	-19.20
Medium "	73	399	21.83	87.04	-18.97
Total "	389	411	\$26.28	\$110.25	
Mixed grades	32	613	24.25	148.67	
Total sale	910	424	\$26.25	\$111.36	

What is the importance of a demonstration on selling by grades? To me, one of the most important points is that it places emphasis on quality production. Under such a system of selling, the person doing the best production job gets the most money.

Also of importance is the education of the farmer as to exactly what kind of animal makes up the various grades--giving him a much clearer picture of market reports and thus evaluating his own animals.

One difficult item to get across to the general public, including the farmer, is the fact that all livestock sells by grade--all livestock buyers evaluate the animals they are to purchase in terms of grades and buy accordingly. This was emphasized in Dr. Cotton's marketing study in 1951. All cattle on 14 auction markets were graded by Division of Markets graders for a two-week period in the spring and a similar period in the fall. The cattle were not marked and the grade was not designated in any way, but let's look at the way veal calves sold during this period.

Price of Veal Calves

Prime	\$38.42
Choice	35.24
Good	33.29
Comm.	31.26
Utility	29.23
Cull	29.05

Since the buyer is going to buy according to grade anyhow, I feel that our feeder calf sales are a valuable educational demonstration in that the grading is done by a neutral impartial grader. The animal is marked with his grade so that all producers and buyers may see the grade mark and quickly reach an accurate appraisal of the animal's value.

2. Value of Grouping: In using veal calves for this last illustration, I had a dual purpose in mind. I want to refer to these figures again in discussing the second important educational feature demonstrated by the feeder calf sale way of marketing cattle--and that is the value of selling cattle by groups rather than individuals.

We have about sixty livestock auction markets in North Carolina, and there are no official graders at either of the markets; 99 percent of all cattle are sold one at a time. The only attempt at grouping is by consignor, rather than grade. There is one exception to this--in the case of veal calves at one auction market the veals are graded by an employee of the market and the calves sold by pens. This was one of the 14 markets included in Dr. Cotton's survey and the figures from this market are included in the above averages. When the prices per grade of this auction are compared with the rest of the State, they consistently averaged a good 2 cents per pound above the other auctions. At least part of this, I feel, is due to selling in a group.

The farmer benefits because his animals of the same weight, sex, and grade sell within a narrow price range and leaves him with a clear picture of the market value of his animals. To quote directly from Dr. Cotton's study he states:

"Average price differentials by grades at auctions which sold animals on an individual basis tended to be off-set by a wide variation in prices paid for individual animals in the same weight, grade, and sex group."

I do not have any figures from our feeder calf sales to back up this point, but it is my honest opinion that if calves bought as club calves were eliminated from consideration the remaining calves sold in groups would average more than those sold as singles.

I hesitate to mention this third educational point that I feel we can demonstrate in our feeder calf sales. In mentioning it I am going to admit in advance that I personally am no shining example as proof of the point. However, I do think all of us should use the feeder calf method of selling calves as a demonstration in conservation of livestock. I note that it is estimated that 66 percent of the losses are as a result of crowding and 10 percent from the use of canes.

In North Carolina we are sponsoring livestock conservation contests for our 4-H Club members; and since we also cosponsor the feeder calf sales, I feel that we should be consistent and practice some conservation ourselves. I am referring to such things as using slaps instead of canes to pen the calves, having feed and water available in all pens, seeing that pens are clean and well-bedded, and having enough space to prevent over-crowding of the calves. It is admitted that this last point will take some time to accomplish, but I feel we should work toward it.

I may have missed entirely the points the program committee has in mind when they assigned us this high-sounding title. What I have concentrated on have been three points. I think our feeder calf sales demonstrate that they have educational value as a way of marketing cattle. They have been:

1. Value of grading - places emphasis on quality, enables the farmer to evaluate his own cattle, better understand market reports.
2. Selling by groups - cattle offered in uniform lots of the same size, grade, sex and breed are more attractive to the buyer and will result in the farmers' calves of the same weight, grade, and sex selling in a narrow price range, giving him a clear picture of the value of his calves.
3. Feeder calf sales should demonstrate livestock conservation practices.

Many more points could be mentioned that are equal in importance to the ones I have listed. In North Carolina most of our sales are fairly new, and we still have a lot of educational work to do on marketing cattle. I feel that our feeder calf sales have been an excellent demonstration of the best way of selling feeder calves.

SUMMARY OF PANEL ON
THE PLACE OF THE FEEDER CALF AUCTION DEMONSTRATION
AS AN EDUCATIONAL TECHNIQUE 4

- I. How Mississippi organizes calf sales to make best use of them as an educational technique:
 1. Determine the areas in which calf sales are needed both from calf numbers and better marketing facilities.
 2. Meeting of cattle producers, professional workers, lending agencies, business people and others to explain how feeder calf producers can organize to better their marketing program.
 3. Setting up of calf sale committee which will actually do the organizing, planning and making of rules, regulations and managing of the sale under the guidance of the Extension Service.
- II. The calf sale program as an educational way for accomplishments and guidance in production.
 1. Selling on a graded basis makes a foundation for a good sound culling program and convinces farmers of the need for a continuous herd improvement.
 2. Pays farmers on a basis of what he has produced consequently shows the importance of a good feed and management program.
 3. The addition of new rules and regulations influences the continued improvement of the cattle production in the area.
- III. The mechanics of the calf sale as an educational technique and summary:
 1. Farmers, livestock market operators, and extension personnel can work together on a marketing program if well coordinated and everyone understands what the program is attempting to accomplish. Also understand that the other fellow's problems are big in his estimation.
 2. Field selection prior to the sale insures the right kind of calves are offered to help the farmer in his culling program.

4/ Presented by K. C. Williamson, Assoc. Extension Animal Husbandman, Virginia Polytechnic Institute, Blacksburg, Va., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

3. Grading should be strict and right but explained to the owner in an attitude of friendliness and helpfulness.
4. Calves are delivered the day prior to the sale:
 - (a) Gives time to get calves penned correctly.
 - (b) Gives buyers an opportunity to look over offering.
 - (c) Producers can compare the grades of calves in groups.
5. Rejects - By sending calves that don't grade medium are better home; owners are embarrassed and make plans for remedying the production of such calves.
6. Selling - Make sure the top grade pens have enough calves to sell good and consequently will show a spread in price between the grades.
7. Make plans prior to sale carefully and in detail to insure a smooth operating, successful sale. Extension Agents should not get so involved in the mechanics of the sale that they forget the educational opportunities and values.

THE FARMERS' STAKE IN LIVESTOCK MARKETING PRACTICES 1/

I have been asked to discuss on your afternoon program "The Farmers' Stake in Livestock Marketing Practices." Inasmuch as my experience in livestock marketing has been largely in connection with enforcement of the provisions of the Packers and Stockyards Act, my comments this afternoon on the topic assigned me will be based primarily upon that experience. There are probably many present here today who have little, if any, knowledge of the Packers and Stockyards Act. Before I begin a discussion of the topic you have assigned me, I think it might be well to give you a very brief summary of the objectives of the Act.

The Packers and Stockyards Act is one of the older regulatory statutes, having been passed by Congress in 1921. In substance, the Act places responsibility in the Secretary of Agriculture to so regulate the public livestock markets of the country as to assure producers that their livestock will be sold under open competitive conditions, that the facilities and services provided both by stockyard companies and selling agencies will be adequate and reasonable, that the yardage, commission, feed and other charges assessed producers are fair and non-discriminatory, and that stockyard companies, commission firms, dealers, and packers subject to the Act will not engage in practices detrimental to the interests of livestock producers and other market patrons. At the present time there are 330 stockyards posted under the Act, 70 of these being terminal stockyards such as those operating at Chicago and other large livestock marketing centers and the remainder are livestock auction markets. There are approximately 2300 commission firms registered to provide selling and buying services on an agency basis at these markets, and about 2800 dealers registered to purchase and sell livestock for their own accounts. These registrants are bonded under authority of the Act in an amount totaling more than 44 million dollars to assure performance of their financial obligations. It is interesting to note that, while shippers to markets not supervised under the Act have lost many thousands of dollars due to defaults of their selling agencies, no consignor patronizing a market posted under the Act has lost a dollar of his proceeds from such cause over a period of many years.

There are approximately 800 scales being operated at markets posted under the Act. These scales, which we consider as key facilities, are required to be installed, maintained, tested, and inspected so as to assure their ability to give accurate weights. Fifteen hundred packers conduct their operations in such manner as to make them subject to the provisions of the Act. In addition to the stockyard scales mentioned above, packers subject to the Act operate approximately 1200 scales over which they purchase livestock. As to such scales, we apply approximately the same standards we apply to public market scales.

The language of the Packers and Stockyards Act giving the Secretary authority to regulate the practices of the livestock marketing and meat packing industries is in general terms. The Act does not spell out the type of practices which constitute violations of the Act -- it leaves that determination to the judgment of the Secretary. You have given me a very broad subject to discuss here this afternoon and I would like to cover it fully and

1/ Presented by M. J. Cook, Chief of the Packers and Stockyards Division, Livestock Branch, P.M.A., at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

make my discussion as informative as possible. To best accomplish these results, I think I should discuss various marketing practices we have encountered in administering the Act by groups or classes:

I would put in the first classification those marketing practices which have the effect of eliminating, restricting, or limiting competitive bidding between buyers of producers' livestock, because I believe that such practices, overall, are most injurious to the interests of livestock producers. Many producers, and some livestock commission men, fail to appreciate the importance of competition in establishing fair market values for livestock. I can assure you that dealers, packers, and other buyers do not underestimate the part competition plays in determining market prices. The regular channeling of livestock to one dominant dealer or packer buyer without offering it on the open market, purchase commitments by packer buyers to market speculators prior to the speculators having bought the livestock, agreements between salesmen and buyers to withhold livestock from competition and price it at the day's quotations, or "sales on the cuff" as they are known in the trade, speculation in consigned livestock by commission firm or auction market personnel, consistent filling of orders out of consignments, connivance between buyers particularly at auctions to limit bidding on livestock and later splitting of the purchases, auction sales continuing into the late hours of the night after much of the buying support has left, turn systems allotting buyers regularly rotated opportunities to bid — all these practices limit or restrict to some extent open competitive bidding and have been held to be violations of the Packers and Stockyards Act and, whenever evidence has been developed that they existed, appropriate corrective actions have been taken.

Another classification would include those marketing practices which have the effect of depriving producers of adequate marketing facilities or reasonable stockyard or selling services. These practices frequently result in actual injury to, or loss of, livestock. Practices of this type are not confined to the public markets; they include failure of truckers when loading livestock at the farms to properly clip brand or otherwise mark livestock of different ownership so it may be properly identified when it reaches the point of destination. If livestock is not properly marked on loading, when it reaches the market mixes and delays in handling may occur. This classification also includes failure of truckers to properly partition livestock being hauled to market with resulting losses to shippers from injuries and bruises, failure to provide sufficient unloading facilities to permit reasonably prompt unloading, delay in feeding at the market, delays in weighing, etc. All these practices increase shrink and lessen the returns producers receive for their livestock.

The third classification covers those marketing practices which burden the marketing system with needless or unnecessary expenses, widening unnecessarily the margin between what the producer receives for his livestock and what consumers pay for meats and meat food products. The channeling of stocker and feeder cattle and slaughter livestock regularly from selling agencies through market speculators to the ultimate buyers at increased prices and weights, excessive filling of livestock by market speculators before it is resold to packers, imposing services and fees on livestock marketed not requested by consignors and serving no worthwhile purpose, all these increase marketing costs and widen the margin between the returns of producers and what the consumer pays for meats and meat food products.

Another classification concerns the competitive practices engaged in by unscrupulous operators in taking business away from members of the trade who conduct their operations legitimately. At first glance, one might conclude that such practices would have little, if any, effect upon the return the producer receives for his livestock. However, such competitive practices on the part of selling agencies as bribing truckers to deliver consignors' loads to their firms rather than to a competing firm, unfair advertising by an unscrupulous operator which tends to deprive legitimate operators of needed volume, all such practices increase marketing costs and lessen the possibility that producers and other market patrons will receive the caliber of selling and buying services to which they are entitled. It is desirable from the standpoint of the producer that the rates assessed by commission firms for selling livestock, or buying it, be uniform for all agencies at a market. Where this condition exists, every agency is put on equal footing insofar as rates is concerned, rate-cutting is eliminated as a business-getting factor, and each firm is required to compete against others for business on the basis of the quality of the services it can provide. Under the Packers and Stockyards Act it is the responsibility of the Secretary to determine reasonable rates to be charged by selling and buying agencies and to prescribe such rates. Thereafter, they must be charged uniformly by all agencies at a market. Livestock producers and other patrons of markets posted under the Act pay annually in yardage and commission charges approximately \$74,000,000 to posted stockyards and commission firms registered under the Act. It is the Secretary's responsibility to assure that these charges are reasonable. The average cost of marketing cattle at markets posted under the Act would be, for both yardage and commission, about 2.00 per head. These charges, I believe, compare very favorably with the charges assessed in the handling of other farm products.

There are certain marketing practices, sometimes extremely detrimental to the interests of livestock producers generally, in which some producers may themselves engage. These practices have the effect of subjecting producers to unnecessary risks, either of loss of their livestock or the proceeds of their sales. Some producers, as well some of their selling agencies, will take the risks incident to selling livestock to a buyer of unknown reputation, or one of known questioned integrity, because such a buyer may offer 15¢ to 25¢ per cwt. more than the bids made by reputable buyers. Certain members of the industry, particularly dealers, sell to certain packers and other buyers of questionable financial standing, but they do so knowing the risks involved and usually make allowances for such calculated risks in the prices charged. Such a method of proceeding in making sales of livestock may be satisfactory for experienced livestock traders but it is not a wise policy for producers to follow. In the long run, producers will fare best if they deal only with buyers who have established a reputation for integrity. Other producers will consign their livestock knowingly to selling agencies of questionable reputation, agencies which are not bonded to assure protection of the shippers' proceeds of sales or which are not required to answer to any regulatory agency if they engage in unfair practices. Any man has the right to sell his livestock to whomever he chooses, under such conditions and by such methods as he chooses, so long as in so doing he does not violate the law. Does it make sense, however, for a producer to spend a great deal of time, effort, and money developing the kind of livestock he believes will bring him the greatest return and then risk his entire investment by selling to a buyer of questionable financial standing or entrusting its sale to an agency of questionable integrity?

Now I come to the last type of marketing practices I intend to discuss. Practices which fall in this classification are those which receive the most attention from livestock producers and, too often, from students of livestock marketing. They are given the most publicity, yet, overall, they are probably less detrimental to the interests of livestock producers than many of the practices I have previously discussed. These practices involve dishonesty or fraud, such as switching of livestock, theft of livestock, connivance between commission firm salesmen and buyers, bribing of weightmasters for favored weights, embezzlement by selling agency employees of shippers' proceeds, thefts of shippers' feed, and many other practices of similar character. Someone has said that "everybody is agin sin" and that is generally true. We have no difficulty in obtaining the cooperation of all rightminded people in the industry in eliminating from the public markets fraudulent and dishonest practices such as those I have named. At the worst, only a very small percentage of the men in the livestock industry engage in such practices. With the cooperation of industry leaders those few individuals, who will not observe the high code of ethics observed by the majority, can be eliminated from our livestock markets. One of the difficulties we encounter in obtaining effective enforcement of the trade practice provisions of the Act arises from the lack of apparent interest on the part of many producers, and producers' organizations, in those practices which may not be openly fraudulent or dishonest but which, through the stifling of competition, deprive producers of full returns on their livestock. We experience no difficulty in interesting industry leaders, trade organizations, and producers' groups, in assisting us in cleaning up bad weighing and comparable dishonest practices. We do, sometimes encounter considerable opposition from trade organizations when we attempt to eliminate from the marketing system such practices as maintaining regular turn systems for buyers in bidding, or the channeling of all stocker-feeder cattle through market dealers. This is not so surprising, because it can be expected that members of the trade, who have sometimes lived with such practices for years, are no longer able to judge the effect it has on the market with complete impartiality. It is surprising, however, and somewhat disappointing, when we are attempting to eliminate market practices equally as damaging to producers' interests as bad weighing, to have producers appear along with market interests supporting the maintenance of the status quo. The great majority of the men in the livestock marketing industry are men of integrity but producers should recognize, in dealing with them, that sometimes they are not in a position to look at market problems as objectively as is necessary to separate the bad practices from the good.

The owners of the 330 stockyards posted under the Packers and Stockyards Act have an investment of more than 120 million dollars in the facilities they have devoted to the public use, to the service of livestock producers. That is a sizeable stake that the stockyard owners have in the public marketing system. The stake of livestock producers in the public markets and the practices engaged in at such markets is, in my judgment, even greater. Unless public markets are kept reasonably free from unfair practices, and trading at such markets is maintained on an open competitive basis, they cannot fully serve the purpose for which the public marketing system was created and, in my judgment, was subjected to Federal regulation — that is, to serve as the mechanism through which fair values for producers' livestock can be established.

PANEL
ON
STATE LIVESTOCK MARKETING PROBLEMS

MAJOR PROBLEMS IN CATTLE MARKETING IN THE NORTHEAST 1/

The major problem in marketing cattle in the Northeast is how to market as beef--an animal that up until the time of marketing had been used to produce milk. That is the major livestock marketing problem throughout the Northeast but I assume that this conference is not primarily interested in the marketing of cull dairy cows. Restricting the marketing of beef cattle narrows the problem down considerably. Rather than having large numbers to deal with we find that in most Northeastern States the problem is how to deal with a small number of cattle and how to market them effectively. In most Northeastern States beef cattle numbers are small, when compared with the States of the Midwest. Beef cattle producers are scattered throughout the State. In most areas, there is no heavy concentration around any one marketing point. In a situation like this a different type of marketing program has to be designed to fit the needs of the producers. In many States this has led to the establishment of special feeder calf sales, fat stock shows, and breed sales. However, these do not answer the day to day marketing problems of many producers. In order to secure satisfactory prices and to build up a good buyer demand beef cattle have to be available weekly at market outlets in sufficient volume to attract a large number of buyers.

In New York for instance we now have only one auction market where enough cattle are coming in every week to attract any number of buyers. Progress is being made in one other auction market. Satisfactory prices cannot be obtained until volume is built up to the point that a large number of buyers will regularly participate in the buying of cattle.

In order to effectively market small lots of cattle scattered about any one State there appears to be a need for more cattle-men's associations with some direct connection with present livestock marketing outlets. Using an example from New York State, I might cite how this system might work. Three years ago a group of New York livestock men formed the New York State Beef Cattlemen's Association. With dues of \$1.00 this association has grown to about 350 paying members. Rather than setting up new facilities for marketing, this group decided to go along with the present auctions and terminal markets. Had this group of beef cattlemen decided to stop at this point probably very little would have been accomplished. However, the beef cattle marketing specialist of the Buffalo Producers was hired half-time by

1/ Presented by Wendell Earle, Agricultural Economist, Cornell University, Ithaca, N.Y., at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

the Empire Livestock Marketing Coop. With the assistance of this marketing specialist members of the beef cattle association can now obtain assistance in marketing small lots of cattle. Here's how the system works: A call to Bob Martin indicating that 15 or 20 head will be available puts him on the job of finding the best possible outlet for these steer. He may indicate that there will be a good group of buyers at one of our auction markets or he may make a direct sale to a packer or butcher. In this way, the cattle are not dumped on an auction or on a terminal market without some advanced warning and without some preparation for the sale of the cattle at a satisfactory market price.

This type of marketing appears to be one that could be developed to a greater extent in the Northeast. Further work needs to be done with our present system of auction markets in order that greater volumes of cattle can be obtained to attract a larger number of buyers.

One other problem that is receiving the attention of livestock marketing specialists in most Northeastern States is the type of finish that producers are putting on their cattle. It is hard for many producers to see why they don't get the top price for prime cattle as reported on the Chicago market. I think it is the job of extension specialists throughout the Northeast to point out to our producers that they probably shouldn't aim for the prime grade. On most farms, the program should be built around a good roughage program. Where homegrown grain is available a short fattening period is desirable. Therefore, our producers should be looking at the price of good and choice cattle in most cases. On some farms there may be enough grain available so that a longer fattening period in a dry lot would be desirable.

With our large urban centers of consumers within easy reach of most producers in the Northeastern States, some men can develop specialized market outlets for their cattle. One large New York livestock farm puts all of its cattle, hogs, and sheep through a retail outlet. This opportunity is available in many areas of the Northeast. It doesn't represent an outlet for large numbers of cattle but is one that can be utilized by many producers.

A minor marketing problem, which I don't suppose States other than New York have to contend with, is the bonding of auction markets. At the present time, a market has only to post a bond amounting to \$10,000 before it can start buying cattle. A good market day at one of the auctions will amount to \$125,000. It is easy to see how little protection that this system offers to our New York State cattlemen. By the same token, people that buy at auction markets do not have to produce any financial statement or produce any bond. To the honest market operator this represents a real hazard and one which he has to face every market day. Some of our market men can report some very sad experiences that they have had with checks that could not be collected.

SOME BASIC PROBLEMS IN LIVESTOCK MARKETING IN EAST ^{2/} AND SOUTH AS COMPARED WITH PROBLEMS IN THE CORN BELT AND RANGE AREAS

The subject assigned to me is a broad one. I'm not sure I know exactly what the program committee had in mind when they assigned me the topic. But I will attempt to discuss some of the problems in livestock marketing as I see them. Problems both old and new are constantly plaguing the livestock industry. Even in the old established livestock producing areas the problems in livestock marketing require constant attention and research. In new production areas problems are on every side.

The livestock industry seems beset with all kinds of problems these days - new diseases, old diseases, drought, lack of feed, marketing expenses, transportation, buying and selling, but the one that affects everyone is prices. The decline in prices, especially of cattle, has scarred many individual producers and jolted the entire cattle industry. I know that it has had a crippling effect upon the cattle producers in your area for it is one in which most of the expansion has occurred in the last ten years. The build-up of herds has been an expensive process without sufficient time for many people to reap the rewards of the high market before the bad bread in 1952.

Changes have almost eliminated some of the important livestock markets of yesterday and seriously affected large terminal or central livestock markets. All of these changes have brought accompanying problems.

The auction method of selling livestock near the farm, continues to grow in all areas. Auctions have brought problems which would require hours to discuss yet they serve a definite need in the overall pattern of livestock marketing. There are other types of livestock marketing, such as concentration points and direct to packer marketing which present definite problems and still are of importance to any livestock marketing program.

Production in East and South

Production can not be divorced from marketing and some of the problems must be considered together. The Corn Belt and range areas have had long years of experience in livestock production and have licked many of the problems which bother the newer livestock production areas.

In my thinking the East and the South has many advantages over the Corn Belt and range areas in production. The prices of land are lower in most cases, and frequently the carrying capacity is greater. You are nearer to the centers of consumption with a market for more livestock than

2/ Presented by R. L. Fox, Senior Agricultural Economist, Farm Credit Administration, Washington, D. C., at the Interregional Livestock Production and Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

you produce at your door. You have adequate rainfall to produce grass and cheap roughage. Mild weather in the South furnishes grazing on almost a year round basis, with less capital investment required for building to protect livestock from the weather. You immediately ask when I say adequate rainfall, what about the drought of 1952? That is a problem which can best be overcome by a build-up of adequate surplus feed supplies of forage crops and other roughages stored as ensilage or hay. Supplies of surplus feed would enable farmers to take care of their livestock production without having to liquidate when droughts come. The adequate rainfall feature does provide the necessary water to fill wells, ponds, lakes, and streams which can furnish water, a necessity in any livestock production program.

Quality of Cattle

I hear a lot about producing top quality cattle that grade prime and choice in these areas. The Corn Belt can and does produce these grades in large numbers. Their problem is not as great as yours in that they produce feeds in abundance which are used to put finish on livestock. You may need to improve your cattle if your main market goal is to furnish fancy feeders for Corn Belt feedlots. But I know from experience that some of the most successful cattlemen have not produced choice and fancy cattle. First you must determine the type cattle needed for your market outlets. I feel that you may be able to produce some good beef beyond the calf stage by using many forms of roughages and crop residues which researchers are discovering have high food value when properly handled and prepared at the farm. True all of these cattle won't be top grade but you may be surprised at the margins realized when compared with cattle of higher quality. All of us prefer to see purebred cattle grazing belly-deep in good pasture and eating at a trough full of corn and the best supplements but you had better be a millionaire for this type of production. This doesn't mean that you can continue with scrub animals for you should strive to improve your cattle at all times by using improved breeding stock, especially herd sires. Changes in farming may even give your area more of the high carbohydrate feeds in the future which can be used to put more finish on cattle. I have seen good beef carcasses coming from grass fed cattle and I'm sure that you can continue to improve your cattle. In the past the South may have been a dumping ground for packers to dispose of low grade meat but with the economic changes and greater industrialization, the demand for better meat will increase. You are in a position to capitalize on this market.

Market Facilities and Practices

The problems here are about the same country wide. The Corn Belt has advantages of the established terminal markets which are now having their own special problems. These have tended to minimize some problems which face the newer areas of livestock production. Auctions, concentration yards and direct marketing are on the increase everywhere. Some are good - some bad - some of the present problems were not anticipated a few years ago.

There has been lots written and said about Southern auctions so I'm only commenting on problems that affect all of the smaller type markets in general. Only a few States have adequate laws and regulations covering weighing, sanitation and adequate bonding.

Honest weighing of livestock is a prerequisite to a good livestock market. How to get honest weights is a problem at every market. Stockyards under the jurisdiction of the Packers and Stockyards Administration are constantly supervised to check the scales and weighing. Even here however bad weighing practices are uncovered from time to time. But many non-supervised markets are using scales that are in bad repair. You couldn't get accurate weights even if the scales were honestly operated. At some places you see scales balanced with odd size weights, bolts, nuts and nails. This makes accurate weighing doubtful. There are too many means of weighing dishonestly without all of the bad features anyone is able to see. Short weights may benefit the buyer but it plays havoc with the livestock producer who needs every dollar.

Proper weighing is of such importance in the determination of livestock values that it should not be intrusted to the buyer or to the seller or to their employees. If a satisfactory system can be developed all livestock weighing should be done by impartial, bonded weighmasters, licensed and paid by each State. This could be accomplished through a State weighing law and financed by a slight charge per draft weighed. Minnesota has had a State weighing law for nearly 30 years that has worked successfully. There'll be opposition to any weighing law livestock producers try to get enacted. You can bet your money on it.

SANITATION

Good sanitary practices need to be stressed at all markets. There seems to be constant outbreaks of diseases, many of which are carried from markets to farm with a continuous spread across the country. Where disease breaks out farmers are the principal losers. Close supervision is necessary to keep markets clean and disease free. Many markets are now supervised by State veterinarians but at many points the supervision is inadequate. More stringent controls, backed by enforcement of the law, would be helpful in cutting down on disease problems.

Grading

Grading has been practically rejected in the Corn Belt and range areas with few exceptions. I firmly believe that the East and South have an opportunity to make grading work better than these other two areas. Livestock production is newer and a good grading program, if properly managed, can be sold easier to people who are coming to market for the first time. Livestock producers will learn rapidly that prices are based upon grades and quality if they have the chance to see grades applied in the sale of their livestock.

Some years back I had the experience of grading and pooling odd lots of slaughter steers on a Corn Belt market. The experiment would have benefitted commission company, farmer and buyer but it met violent opposition from buyers and farmers and had to be abandoned, yet we had the proof that better prices could be secured and expenses cut by grading and pooling individual animals.

Pooling

Pooling into uniform lots and grades seems to be almost a necessity if improvements are to be made in marketing as the bulk of today's consignments are small. Pooling provides grades in sufficient quantity to attract buyers who want to purchase a carload or a truck load at one bid. It can also be used in putting together as few as four or five animals to satisfy the needs of the smaller killers, slaughterers or farmer buyers. I believe that pooling would solve the problem resulting from late evening and all night sales where each animal is sold individually. I have seen cattle sell 1 to 3 dollars a hundredweight less at 11 p.m. than at 4 p.m. I was told the sale continued until 7 a.m. the following day. You can draw your own conclusions as to prices farmers received for their cattle under such conditions of sale. Good buyers work on a definite daily schedule and don't like such hours. Only traders and speculators looking for bargains are going to stay those hours. We certainly ought to be able to figure out some improvements here. Earlier starting hours will also help both farmers and livestock buyers are early risers so there is no reason to wait until afternoon to start an auction sale.

Competition and Volume

With the increase in auctions has come the problems of securing adequate volume and competitive bidding for livestock. Too many markets and too few buyers seems to be a plague in many places. It takes livestock in sufficient quantity to make a good market. Volume is necessary to attract active buyers. Whenever the volume is split by a large number of small markets good buyers feel that they cannot afford to attend all of these markets. Lack of volume also encourages buying and speculation on part of the market operator. If the operator becomes involved in the buying and selling of his own livestock it becomes his first interest and he fails to render service to the farmer.

Buyers soon spot the markets that follow shady practices and either go into "cahoots" with the operator or stay away from them. There have been reports that some markets even ignore buyers bids at times in order to buy the livestock themselves or knock it down to some trader. These problems require constant attention and maybe some drastic measures to correct them.

I have tried to stay away from discussion of hog marketing but one feature needs attention in the South. The practice of "plus" or buyers choice in selling of graded hogs should be eliminated in my judgment. It tends to do away with buying competition and often drives small slaughterers away from the market. All markets should strive to offer hogs in lots suitable to the buyers needs. Large packers can always protect themselves by forcing the small killers to pay as much or more for their hogs as they were forced to pay.

Producers Credit

The problem of credit to livestock growers is probably more acute in the East and South than most other sections of the country. Bankers and loan agencies in these areas have had little experience with livestock so are hesitant about making loans. The action of the cattle market and experiences of the past year haven't added to their confidence.

Credit has been geared to cash crops in the South. The Northeast hasn't required as much credit. With the shift to more livestock production, credit agencies in these areas have had to adapt their operations to a practically new industry, one in which they had little operating experience. Hence they are slow to recognize the needs of the livestock man.

There is a need for both dependable short and intermediate types of credit for livestock producers in your areas. The short term credit for the feeder and the intermediate type for the cow and calf man who needs two to five years to get started and build his herd before he can realize returns.

I know that more consideration is being given to credit needs in these areas for the livestock producers but there is need for more study by research workers and credit agencies.

Marketing and livestock credit will be more integrated in the future than it has in the past. Some credit agencies are now asking where the borrower is going to market his livestock. The marketing program is going to be evaluated along with the grower's financial statement and production plans.

Production Credit in the Area

In the West a number of large cooperatively owned livestock credit corporations are closely affiliated with cooperative livestock marketing agencies. The marketing cooperatives cater to the livestock buying and selling needs of farmers and ranchers. Producers needing credit to finance their livestock operations secure it from their cooperative livestock credit corporations. This arrangement has worked out well for the past 25 years.

Buyer Credit

Financial responsibility is important to all segments of the livestock industry. The problem of extending credit to packers and slaughterers buying at your local markets and livestock auctions deserves consideration. In the Corn Belt livestock is sold on a cash basis but in the East and South a week's credit and sometimes even more is extended. It is unfair to commission men and other market operators to be placed in a position where they must finance packer operations. Heavy losses to livestock producers and marketing agencies have resulted from failure of packing companies to pay for livestock purchased. Southern and Eastern livestock should be sold on a cash basis. If any credit extensions are made buyers should be required to post bond to cover purchases on credit. This may require legislation in some States but it is an action that should be taken for the protection of livestock producers.

Seasonality

Production of livestock is a seasonal proposition in all sections. It seems to be even more so at the present in the South and East. I don't believe that it necessarily needs to continue unless you are going to produce only for the stocker and feeder calf market. The range area follows marketing at only 1 season (fall) because they lack pasture and hay to carry many cattle through the winter other than a cow herd. Many Corn Belt cattlemen are guilty of marketing on a seasonal basis because livestock is a side line and crops are the main interest.

A Utopian condition would be achieved if all classes and grades were marketed in uniform numbers each week. Proper distribution would even out prices and cut down on processing, wholesaling and retailing costs. There exists the problem of how to produce and sell at the right time. With the weather on your side for producing corps, seasonal market gluts should be curtailed in the South.

Extension's Part in Livestock Marketing

The extension workers are to be highly commended for their aid in livestock marketing. You have given many long hours and hard work to push marketing. Your work with the feeder calf sales have been an example for others in many sections of the country.

Livestock Market News

Market news is important information for the livestock producers. How to make available a valuable service to the farmer is a problem. The lack of terminal or central markets makes accurate market news less reliable. Reporters are unable to see enough cattle to determine if prices are the same for each grade sold at the many markets. Further study should be conducted to improve collection and dissemination of accurate and timely market news. Livestock producers need this information to make decisions when and where to market their livestock.

A big problem remains to be solved. And that is, securing the participation of the livestock producer. Enroll the farmer in a campaign so that he, not you, takes the responsibility of seeing that good marketing practices are observed. Obtain producer-backing and support of markets which handle volume and attract buyers who really compete for livestock. Make the farmer realize that he is the one and only one who will benefit from a good livestock marketing system, that he is the one to see that problems are whipped; he is the one to get proper legislation if your State markets need legal controls. Work through your farm and community organizations. Your advice and counsel are needed. But do not become so involved yourself with the mechanics of marketing that you have time for nothing else.

The South has several advantages in the way of production. These advantages can be developed so that you can compete in livestock production with any other area in the country.

In marketing the field is underdeveloped. You are making progress but there is still a big job ahead. There is a need for qualified men to do marketing work. Men are needed who understand and appreciate the duties and responsibilities they owe the livestock farmer and to serve him well. You may need to send some of your promising young men to the better developed livestock marketing areas to learn how to do the job first hand. The best packers train their buyers for years. The man handling and selling livestock deserves equal training.

PROBLEMS IN SWINE MARKETING IN THE SOUTHEAST 3/

Hogs are grown on most every farm in the Southeast because swine can be worked into the production plan of most farms. Rarely are hogs the main source of income on Southeastern farms but are grown to market surplus grains and use other farm products. According to the United States Department of Agriculture, the Southeastern States ranked high in the number of pigs saved in the nation in 1952.

RANK	STATE	NO. SAVED
8	Georgia	2,670,000
10	North Carolina	1,823,000
11	Alabama	1,757,000
12	Tennessee	1,727,000
17	Virginia	1,193,000
20	South Carolina	952,000
23	Florida	852,000

From the above figures, we see that hog production and marketing is an important part of our farm enterprise, both from a standpoint of marketing out grain through hogs and as a source of income.

Swine marketing in the Southeast is similar to most areas in that hogs are bought primarily on a weight basis.

Why do we want to grade hogs and sell on a grade, weight and quality basis? Many of our agricultural commodities such as cotton, tobacco, lambs and cattle are sold on a grade basis and it works well. Producers receive a lower price for these lower grade commodities and say nothing. Paying on a grade and quality basis gives producers an incentive to produce high quality products. Why won't this same system of marketing work with hogs?

I am going to attack the production and marketing problems from two sides, listing some of the major problems.

First, points producers should try to correct -

1. Improve breeding and quality of hogs for efficiency in production and meeting consumer demand.
2. Castrate pigs at an earlier age to prevent staggy hogs.
3. Be more mindful of external and internal parasites and diseases. (Especially liver condemnation.)
4. Bruises, cripples, deaths from farm to markets.
5. Fill (Low yields.)

3/ Presented by A. T. Lassiter, Marketing Specialist, North Carolina Department of Markets, Raleigh, N.C., at the Inter-regional Livestock Production & Marketing Conference, June 15 - 19, 1953, Knoxville, Tenn.

Second, Buyers, Producers and Market Operators.

1. Poor job of grading or sorting.
2. Penalizing meat-type hogs.
3. Small processors paying more for heavy hogs than handy weight hogs bring at auction markets.
4. Competition during light run of hogs so keen, poorest job of grading, sorting according to weight done.
5. Paying more for particular breed regardless of finish and quality.
6. Buying solely on weight basis.

What are our best approaches to the problems?

1. Carry on an educational program for producers, market operators and processors.
2. Inform hog producers of the advantages of producing meat-type hogs.
 - a. Lard
 - b. Fatty cuts - heavy cuts
 - c. Consumer demands
3. Use 4-H and Adult Barrow Shows in educational program.
4. Have market operators and processors understand the importance of selling or buying on a grade basis thus encouraging production of meat-type hogs.
5. Aid commercial hog producers in obtaining the desired type of breeding stock for market hogs.
6. Conduct on-the-hoof and carcass cut-out demonstrations for producers, sellers, and buyers to identify and grade meat-type hogs.

For an improved hog marketing system that will reflect price advantages for meat-type hogs it is going to take an effective educational program and combined efforts of producers, buyers, sellers and processors.

PROBLEMS IN LAMB MARKETING IN
TENNESSEE

4/

Tennessee is a fairly large producer of spring lambs. Most of the sheep are located in middle Tennessee, although West Tennessee is growing in sheep numbers. Tennessee sheepmen have been on a western ewe replacement program for several years. Tennessee lambs go to market earlier than lambs from Kentucky, Virginia and North Carolina.

The major lamb marketing problems in Tennessee are (1) buying power. With the exception of the Nashville market, there are seldom over two buyers at lamb sales and in some cases only one buyer. There have been cases where buyers actually divide lambs after a sale; (2) time of marketing, to get maximum returns for lambs, they should be marketed between the first of May and the middle of June. Many lambs are held until hot weather hurts the grade and the price goes down; (3) volume, in areas away from terminal markets and lamb pools, some lambs go through auctions at low prices because there is not enough volume to warrant lamb buyers being present.

STATE LIVESTOCK MARKETING PROBLEMS
SUMMARY

5/

In summary of our panel discussion on "State Livestock Marketing Problems" I would like to draw your attention to: What is Marketing; and What Marketing problems should we be most concerned with? Marketing involves many services in getting goods from the producer to the consumer. While our responsibility lies with bettering the industry as a whole it would appear that this could best be accomplished by building a more efficient marketing structure and improving facilities. With this approach we can better hope to eliminate many of the individual problems which are more likely to be reoccurring if once solved.

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- 4/ Presented by J.W. Houston, Asst. Extension Animal Husbandman, University of Tennessee, at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.
- 5/ Guy R. Cassell, Livestock Marketing Specialist, North Carolina State College, Raleigh, N.C., at the Interregional Livestock Production and Marketing Conference.

In order to summarize our marketing problems let us look at them in this order:

1. What to market.

Under this we not only need to determine the quality and quantity of animals to be marketed but to study the consumer demand and how these prices by quality are reflected in producer prices. Livestock producers need to keep in mind that the object of production is consumption and should strive to fill this demand. Producers also need to know the prices by grades, weights and seasons.

In this category we have a great need for continuous research in order to be able to define our marketing problems and determine their cause.

In addition to the above the means of improving consumer education is extremely important.

2. Where to Market.

Our producers have a problem determining where to market and the type of outlet to use. They need a better understanding of the different grades of animals in order to make greater use of the market news service which would help determine the best market for the grade of animal they have to sell. In the way of market news we need more detailed reporting for our local markets. The relative costs of marketing through different outlets should also be considered, such as transportation, commission charges, and shrinkage.

3. How to improve the marketing structure.

The objective of improving the marketing structure is to reduce marketing costs to the end that farmers receive better prices and consumers are supplied meat at a lower cost. This is being done in some instances either by changing the marketing structure or by making each step more efficient. An example of changing the marketing structure would be selling finished cattle directly to the slaughtering plant, thus eliminating the auction or terminal market. As for increasing the efficiency of the present structure an example would be to reduce the time required in selling by grading the animals and selling in pen lots.

GROWING IMPORTANCE OF ANIMAL HEALTH

We wish this morning to give you a run down on some of the old health hazards as well as touch on so called newer diseases. I would suggest that we don't stress new diseases until we learn to apply knowledge we already possess to old disease problems.

We want you to feel that this is your meeting. We will discuss things we feel you are interested in. When we have completed this phase, please feel free to discuss, argue, and ask questions.

Bang's Disease

Basically a disease affecting reproductive tracts of swine, goats, and cows. Infectious to man as undulant fever. Occupational - slaughterhouse workers, veterinarians, and farmers. Can be contracted from meat, milk, placenta. Eradication program now in progress, started by a committee of veterinarians and agricultural workers. Wisconsin in two years has -

Blood tested one and one-half million cattle.
Branded, appraised, and slaughtered nearly 77,000.
Vaccinated (State expense) over 544,000 calves.

and has these specific points in its program:

1. DBR (Ring) test each 6 months of all cream and milk at stations.
2. Blood test (State paid) of all DBR (Ring) tested herds.
3. Compulsory slaughter and payment of indemnities for all reactors.
4. Official (State paid) calf vaccination with Strain 19 or "M". Nearly 100 percent vaccinated.
5. Controlled movement of all cattle.
6. Encourage raising of own replacements.

An illustration of State control with deferred slaughter.

Any animal over 12 months of age sold for breeding purposes must be tested not more than 30 days before sale, (90 days if whole herd is clean), except -

- a. Immediate slaughter animals.
- b. Official vaccinates within 12 months of vaccination.

This gives a basis to control flow of cattle from sale yards.

D Summary of presentation by Dr. G. M. Merriman, Associate Veterinarian, University of Tennessee, at the Interregional Livestock Production and Marketing Conference, June 15-19, 1953, Knoxville, Tenn.

"M" Vaccine

Developed by Huduleson about 1946 or 1947. Mucoid strain of Brucella Suis, advantages -

- a. Used on any age over 8 months.
- b. No post vaccinal reaction.
- c. Safe on pregnant females.
- d. Can be repeated every two years.

Used only in Michigan, except under special prohibitive Federal regulations. We approve it highly.

Leptospirosis of Cattle

An acute disease of cattle with early deaths, loss of appetite, rapid breathing, and often abortions. First reported in the United States in 1944. Symptoms -

Many positive cows are found with no symptoms.

Peracute cases may die before symptoms appear.

One to two weeks incubation.

Often diarrhea.

Complete loss of appetite and milk flow.

Temperatures of about 104.

Anemia and icterus.

Abortions in pregnant cows which live long enough.

50 to 70 percent of herd infected.

Death rate 5 to 25 percent, especially heavy in calves.

Spread by urine of carrier animals.

Diagnosis by serological tests need improving. Must be differentiated clinically from vibriosis, Bang's, shipping fever, anaplasmosis. Transmissible to man. Control and prevention - immunization likely to be successful, Streptomycin and aureomycin helpful in treatment.

Blue-Tongue of Sheep (From South Africa)

This is a virus disease of sheep, transmitted solely by biting insects, midges (*culicoides*). It was diagnosed in California in 1952, Texas in 1951, and tentatively diagnosed this year in Utah. The disease causes moderately heavy death loss, severe loss of wool value, and carcass weight. The B. A. I. and State livestock officials are attempting to control the disease. Vaccines have been promising in South Africa.

Acetonemia

Symptoms - three weeks after calving loss of appetite, weight, condition of milk flow, presence of ketones and acetones in urine.

Cause - Involvement of pituitary, adrenal, and pancreas. Drop in blood sugar with resultant poor oxidation of fats.

Therapy (primary only) - Dextrose, still good; Cortisone, rapid, 1 to 2 doses; A.C.T.H.

Prevention - still none.

Sterility

Very important, may affect 30 percent of average herds. Various causes - hormone disbalance, often can be treated; Bang's; vibriosis; other infections of uterus (metritis); ovarian dysfunction; cysts; retained C.L. (corpora lutea).

Sanitation

Proper disposal of dead; proper disinfection; soap and water; and Q.A.C.

REPORT OF RESOLUTIONS COMMITTEE

Believing that it is always fruitful procedure to examine the accomplishments of a working conference, the members of the 1953 Interregional Livestock Production and Marketing Conference assembled from the Northeastern and Southern Extension Regions at the University of Tennessee as a part of its agenda, has attempted to study objectively the practical value of such annual conferences to the various Extension workers and State Extension programs. It is the unanimous consensus of opinion of the membership of this conference that annual meetings are invaluable as a media for the exchange of professional ideas and extension methods for professional development and improvement, and for the inspirational exchange of the means of solution of common problems in the Extension livestock production and marketing fields.

Out of this annual conference has grown many of the most effective extension programs which have been carried out in recent years. This influence has come through the study of the situations within which programs have been developed in the various States, accomplishments through these programs and methods which have been followed in such developments. To mention but a few, some outstanding examples are:

1. Expansion of lamb pools.
2. Increased use of yearling western ewes for replacement purposes.
3. The widespread development of demonstrational feeder calf sales.
4. Increased impetus to the attack of the problem of surplus fats and oils through the promotion of the meat-type hog.

At various times appropriate consideration has been given to the importance of pasture and farm production to feed for efficient growth of livestock. This has included feeding, management, disease prevention and control, and the many phases of marketing problems. The accomplishments of past experiences are a clear indication of the effectiveness of this conference in coordinating the Extension livestock production programs and particularly the Extension marketing programs for the solution of the pressing problems of the immediate future.

Be it resolved that this group express their deep appreciation to Director J. H. McLeod of the Tennessee Extension Service and his associates for their splendid cooperation and all their efforts in making this conference a success.

List of Persons in Attendance at the
INTERREGIONAL LIVESTOCK PRODUCTION AND MARKETING CONFERENCE
June 15 - 19, 1953
University of Tennessee
Knoxville, Tennessee

ARKANSAS

M. W. Muldrow, Extension Animal Husbandman, P.O. Box 391,
Little Rock, Ark.

Fred W. Harrod, Extension Livestock Specialist, Eastern
Arkansas Livestock Association, Marianna, Ark.

CONNECTICUT

D. C. Gaylord, Extension Animal Husbandman, University of
Connecticut, Storrs, Conn.

GEORGIA

Charles E. Bell, Jr., Extension Livestock Specialist,
University of Georgia, Athens, Ga.

R. O. Lawhon, Gen'l Agriculture and Livestock Agent,
Southern Railway, Atlanta, Ga.

ILLINOIS

Oscar A. Day, Economist, Wilson & Co., Inc., Chicago, Ill.

INDIANA

W. M. Beeson, Professor, Animal Husbandry, Purdue University,
Lafayette, Ind.

KENTUCKY

Ray C. Hopper, Field Agent in Animal Husbandry, University of
Kentucky, Lexington, Ky.

MARYLAND

J. E. Foster, Head, Animal Husbandry Dept., University of
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Amos R. Meyer, Marketing Specialist, University of Maryland,
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NEW YORK

Wendell Earle, Agricultural Economist, Cornell University, Ithaca, N.Y.

M. D. Lacy, Professor of Animal Husbandry, Cornell University, Ithaca, N.Y.

George R. Johnson, Extension Animal Husbandman, Cornell University, Ithaca, N.Y.

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OHIO

C. W. Hammans, Extension Economist, Ohio State University, Columbus, Ohio

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Charles S. Hobbs, Head of Animal Husbandry-Vet. Science Dept.,
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Ed. Synar, Livestock Service Director, Wilson & Co., Inc.,
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Tom J. Hitch, President, Tennessee Farm Bureau Federation,
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J. William Cole, Assoc. Professor, Animal Husbandry,
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B. M. Merriman, Asso. Veterinarian, University of Tennessee,
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E. J. Warwick, Southern Regional Beef Cattle Coordinator,
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Ralph McDade, Visual Aids Specialist, Extension Service,
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C. M. Kincaid, Professor of Animal Husbandry, Virginia Polytechnic Institute, Blacksburg, Va.

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George W. Litton, Head, Animal Husbandry Dept., Virginia Polytechnic Institute, Blacksburg, Va.

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Thomas H. Bartilson, Extension Animal Husbandman, Extension Service

Harold F. Breimyer, Agricultural Economist, Bureau of Agricultural Economics

M. J. Cook, Packers and Stockyards Division, Production and Marketing Administration

R. L. Fox, Agricultural Economist, Farm Credit Administration

